Working Mothers Around The World

Moderating effects of social position on mothers' paid work in middle- and high-income countries

Janna Besamusca

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To my grandfathers, who taught me the value of work
To my grandmothers, who taught me the privilege of work

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Foreword

Six years ago, coming out of a "24/7" kind of job at a Brussels-based youth organization, I signed a contract at the Amsterdam Institute for Advanced Labour Studies (AIAS) that set me off on a whole new adventure. This signaled a period of transformation from an in-charge-of-everything and always-out-of-time Secretary General into a PhD student with virtually no responsibilities and all the time in the world to read up on literature, think about research questions, and chat about insecurities, advisers, and the entrenchment of gender and ethnic inequalities in globalized capitalist economies. I could barely believe my luck – to have landed a position where I'd merely have to do what I love. I had the best possible welcome at AIAS, where lunches were enjoyed together (in the park as soon as temperatures topped 20 degrees Celsius) and everybody always seemed happy to walk into you in the corridor, or as least they would after the first morning coffee. I thank all my AIAS colleagues, many of whom have become my friends, for being the warmest and most welcoming organization I can imagine. I look back on years of successful institutional growth – such as the launch of tosti Fridays (now tosti Mondays), the acquisition of the table tennis table, and the very generous offer of Nespresso coffee. Thanks are due, in particular, to Angelique (genius behind some spectacular office outings), Casper (the one and only tosti master), Claire (my reliable dinner date and always ready to pressure an Indian colleague into teaching us how to cook), Noëlle (owner of the unicorn slippers that compete in awesomeness with my Kung Fu Pandas), and Wike (Zen and plan expert who can make any task look small).

My PhD years have taken me to many places, literally and mentally. First and foremost, this journey was guided by my advisers: Kea Tijdens, Maarten Keune, and Stephanie Steinmetz. They patiently debated with me every time I refused to reduce my research questions to a more manageable size, read what I am sure were hundreds of draft papers about nothing and everything, and gave me the direction I needed to succeed. The program group Institutions, Inequalities and Life Courses at the sociology department, which kind of adopted me in my first year, has provided me with valuable access to the broader sociological community, much advice, and many friendships. Naturally, I am grateful for the inspiration I thirstily took in while a guest at the Universitat Pompeu Fabra, Universidad de Oviedo, the Graduate Center of the City University of New York, Tel Aviv University, and the University of Pennsylvania. Working in different environments and learning from all the professors I want to be like when I grow up has been a privilege. It's a privilege made possible by the EQUALSOC and Webdatanet networks, the European Consortium for Sociological Research, the Research Committee on Social Stratification and Mobility, the Prins Bernhard Cultuurfonds, Catherine van Tussenbroekfonds and Jo Kolk Studiefonds. Both the funders and the inspiring professors

I worked with, all of whom I wrote to with the ambition to explore new fields and who granted me that wish expecting so little in return, I thank for their generosity.

Finally, I'd like to thank all those people who pulled me through the more difficult times in the life of a PhD candidate, which I am tempted to leave out of this foreword – that, however, would be a lie. Particularly towards the end, when attention to detail becomes more important than new ideas, I often struggled to get back to the writing. Some people were instrumental in getting me through these moments. I thank Elleke, Alicia, and, yes it's a cliché, my mother for being always on my side and enduring the phone calls that were really only me talking as well as for calling back when I didn't. I am grateful to my family for the support and advice, as well as occasionally kicking my ass. I clung to my karate and nunchaku trainings, which through the years have become a familiar and effective way to blow off some steam. I thank the WageIndicator team (too sexy for science, really) that makes research look both cool and relevant: you're the best motivator there is. Hannah, Jana, and Bibi helped me re-discover the power of concentration; Noëlle and Wike censored my emails when I was angry or lost; Christy, Shadi, Yana, Megan, and Lauren made my English read like real English. Most of all, I enjoyed the support and friendship of many – you know who you are. Both at home and in the unfamiliar far-away places I spent the months of my research visits, you made me feel happy, curious, and lucky. Now that this thesis has been submitted and I have been seeing more of you again, you make me feel like new adventures.

Janna Besamusca
Amsterdam, January 2019

Chapter 1

Introduction

1.1 Why Study Mothers' Paid Work in a Global Context

1.1.1 Motivation and scope

In both developing and industrialized countries today, mothers constitute a substantial share of the labor force (Abramo & Valenzuela, 2005; Agüero & Marks, 2010; Goldin, 2014; Gornick, Meyers, & Ross, 1997; Pettit & Hook, 2005). Mothers' engagement in paid labor has also been encouraged across levels of economic development through a political agenda for equal rights, opportunities, and investments in early childhood care (Branisa, Klasen, & Ziegler, 2009; Bruneforth, 2015; Razavi, 2016; UNESCO, 2015). At the same time, mothers have not made up for their increased efforts in paid labor by relinquishing responsibilities in the private sphere (Bianchi et al., 2000; Ferree, 1991; Hochschild & Machung, 2012; Jacobs & Gerson, 2004; van der Lippe, Tijdens, & de Ruijter, 2004). Care tasks are still a quintessential facet of working mothers' daily routines as well as their identities (Blair-Loy, 2003; Christopher, 2012; Gerson, 2010; Hochschild & Machung, 2012; Pepin, Sayer, & Casper, 2018). Indeed, a long tradition of feminists have made it abundantly clear that unpaid care work performed by both employed and non-employed mothers, remains the undervalued foundation of labor markets across the world (Arruzza, 2014; Benería, 1992; Boeri, 2018; Fraser, 2013; Tancred, 1995).

It is unsurprising, then, that motherhood also continues to have a large impact on women's paid labor (Gutiérrez-Domènech, 2005; Uunk, Kalmijn, & Muffels, 2005). The relationship between motherhood and paid work has, as a rule, been conflictual because societal norms towards both good mothers and good workers have tended to demand full-time commitment and dedication; even to the extent that engagement in one implies a slight on the other, or on both (Blair-Loy, 2003; Ekinsmyth, 2014; Christopher, 2012). Thus, in most if not all countries, combining paid employment and care work remains associated with time and role incompatibilities (Cuddy, Fiske, & Glick, 2004; Fortin, 2005; Hochschild & Machung, 2012; Jacob & Gerson, 2004; Pfau-Effinger, 2005). In consequence, motherhood affects whether women are in the labor force, their status in employment, and the rewards they receive from their labor (Brewster & Rindfuss, 2000; Budig & England, 2001; Grunow, Hofmeister, & Buchholz, 2006; McManus, 2001; Simoes, Crespo, & Moreira, 2016; Steiber & Haas, 2012).

In this dissertation, I study the consequences of motherhood on different facets of women's paid labor in the public sphere, which I refer to as labor market outcomes. I do not mean to imply that paid labor is the only valuable form of work, or that mothers are the only people who provide unpaid care. Mothers' paid work in the labor market, however, does define the scope of this dissertation. I chose this delineation because it represents much of the actual tension deriving from greater female involvement in labor markets and mothers'

continued care responsibilities: the clash between the pressure to emancipate towards equal labor market outcomes and two-earner families on the one hand, and the unwillingness to admit or change that unpaid care sustains capitalist labor markets. While women (and men) admittedly also care for their spouses, parents, and grandchildren, motherhood remains the epitaph of unpaid care responsibilities: care burdens are larger, more long term, and occur in some way or another for virtually every woman who gives birth.

Mothers juggle their double responsibilities in many different ways. Their engagement in paid work is affected by the need and wish to provide care and education for their children, the opportunities and necessities to engage in paid labor, and the extent to which the former two are mutually exclusive (Abramo & Valenzuela, 2005; Amin & Alam, 2008; Barrientos & Kabeer, 2004; Lincove, 2008; Semyonov, 1980). Such factors can lead to different behavior across, but also within countries. The balance between the need and wish to care or work can be quite different for a mother working as a manager, a medic, or a maid. In any country, there are mothers who provide fulltime care, who outsource almost all care work, and who perform both tasks (Chang, 2004; Goldin, 1995; Mehra & Gammage, 1999; Mishra, Nielsen, & Smyth, 2010; Pampel & Tanaka, 1986). These different combinations of care and work responsibilities are entangled with societal and labor market inequality (Korpi, Ferrarini, & Englund, 2013; Pettit & Hook, 2005). In separate segments of societies, some work-care configurations can be preferred over others; or they can be within or outside reach through economic and policy pressures (Baird & Renolds, 2004; Biersteker, 2010; Bruneforth, 2015; Glauber, 2011). Mothers in different social positions, defined as more or less privileged positions from a socio-economic perspective, have different ways of dealing with time and role incompatibilities (Bhalla & Kaur, 2011; Goldin, 2006; Haas et al., 2006; Jacobs & Gerson, 2004; Mandel, 2011; Milkman, 2016; Nussbaum, 2001; Salway, Rahman, & Jesmin, 2003).

Country comparative research indicates that the incompatibility of work and care tasks is also bigger in some countries than in others (Agüero & Marks, 2010; Matysiak & Steinmetz, 2008; Parrado, 2002; Pettit & Hook, 2005; Tijdens, 2002). We know that country differences in mothers' paid work are associated with economic conditions, such as the degree of inequality, hardship, and level of economic development (England, Garcia-Beaulieu, & Ross, 2004; Haghihat, 2002; Pampel & Tanaka, 1986; Rendall, 2013; Steiber & Haas, 2012). Previous research has shown that mothers' engagement in paid work, and the nature of that work, differs according to the institutional support that is provided in a country, as well as the extent to which such behavior is considered appropriate (Apps & Rees, 2001; Branisa, Klasen, & Ziegler, 2009; Boeckmann, Misra, & Budig, 2015; Fortin, 2005; Hegewisch & Gornick, 2011; Kremer, 2007; Orloff, 2002; Stier, Lewin-Epstein, & Braun, 2001). Scholars have also explored the interaction between the different domains, particularly the effect of work-family policies in different cultural contexts (Hummelsheim & Hirschle, 2010; Mandel, 2009; Pfau-Effinger,

2005). We thus know that the effect of motherhood on women's labor market outcomes differ between countries and that economic, policy, and cultural contexts matter.

We know much less about the applicability of these findings across labor market outcomes, levels of economic development, and social positions. While scholars have explored the effects of country contexts on a range of labor market outcomes, studies that test the same country level contexts on different labor market outcomes are rare (Hegewisch & Gornick, 2011; Steiber & Haas, 2012). Therefore, we are less certain about the exact way in which economic, policy, and cultural contexts affect mothers' paid labor. Second, with a few notable exceptions (c.f. Bloom et al., 2007; Lincove, 2008), research on motherhood effects on women's labor market outcomes in (post)industrial and developing economies is still largely conducted in separate studies. Quantitative, country-comparative studies in developing countries are often geared towards explain gender inequality rather than motherhood; theories regarding motherhood effects are regularly tested on high-income countries only (Abramo & Valenzuela, 2005; Bloom et al., 2009; Brewster & Rindfuss, 2000; Fortin, 2005). As such, it is difficult to ascertain on the basis of existing evidence to what degree motherhood effects on women's paid labor differ between levels of economic development.

Finally and perhaps most importantly for the purpose of this dissertation, we also know very little about how these country contexts affect the labor market outcomes of mothers in different social positions. There are certainly a number of studies that have investigated which group of women is most affected by motherhood in terms of their labor force participation, status in employment, and job rewards (Budig, 2006a; England et al., 2016; Wilde, Batchelder, & Ellwood, 2010). Few studies, however, have researched this from a country-comparative perspective. Those studies that did, found different results (Budig, Misra, & Boeckmann, 2016; Halldén, Levanon, & Kricheli-Katz, 2016; Todd, 2001; Tonoyan, Budig, & Strohmeyer, 2010). Thus, while motherhood effects on women's paid labor have been the subject of sociological studies for some time, large questions remain regarding the heterogeneity of previous findings across labor market outcomes, levels of economic development, and social position.

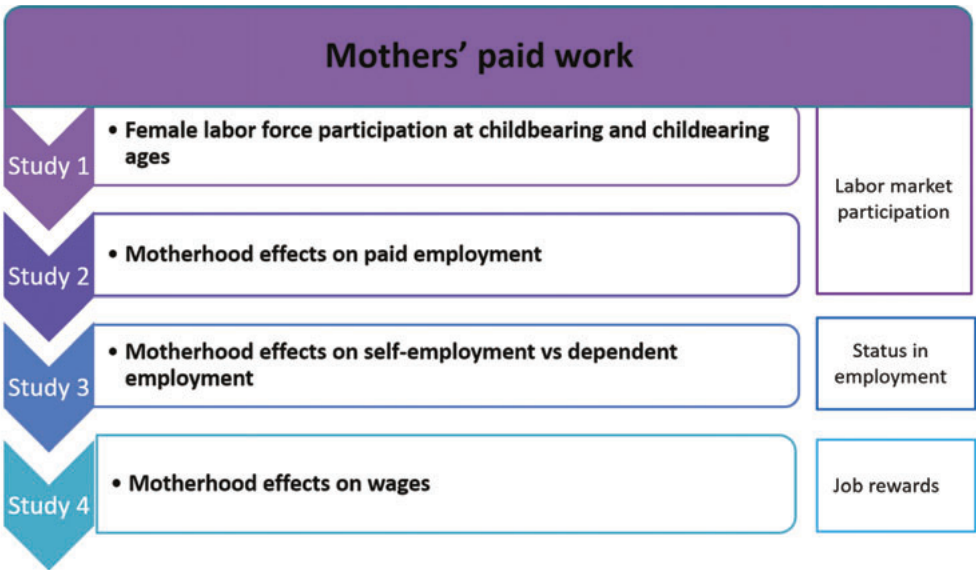
1.1.2 Research questions and aims

The main research question of this dissertation is: how does women's social position moderate the way economic, policy, and cultural contexts influence motherhood effects on labor market outcomes in industrialized and developing countries? As such, the central phenomenon studied in this dissertation is the role that social position plays in the relation between motherhood status and labor market outcomes. I refer to the interaction between social position and country contexts as the heterogeneous effects of country contexts.

I research these heterogeneous effects in four studies. In the initial, explorative first study, I ask which country level characteristics can explain aggregate labor force participation of prime age women at different levels of economic development? In the remaining three studies, I then research the interplay of country contexts and women's social position on mothers' paid labor by studying three labor market outcomes. First, motherhood effects on employment as a proxy for mothers' labor market participation (chapter 3), understood as their engagement in paid labor regardless of working hours, sector or any other conditions of employment. Second, motherhood effects on self-employment as a proxy for status in employment (chapter 4), which in accordance with ILO definitions represents the "type of explicit or implicit contract of employment the person has with other persons or organizations and measures the type of economic risk and the type of authority over establishments and other workers which the job incumbents have or will have (ILO, 2000)." Third, motherhood effects on wages as a proxy for rewards from paid labor (chapter 5), which refer to mothers' relative position in the labor market (Cobb & Lin, 2017; Kalleberg & Sorenson, 1979; Tu, 2017). As Figure 1.1 shows, I ask: how does women's social position moderate the way country contexts influence the motherhood effect on (1) employment, (2) self-employment, and (3) wages in industrialized and developing countries?[1] Each study includes both high- and middle-income countries, as outlined in the overview in table 1.1 later in this section. In the sixth chapter, the findings from these four studies are drawn on to answer the overarching research question.

By systematically studying the same social position and country context effects across high- and middle-income countries but dividing the different labor market outcomes across the four core chapters of the dissertation, as displayed in Figure 1.1, I attempt to meet five main aims. The first aim is to disentangle motherhood effects by labor market outcome, social position, and country context. This aim is what brings the four studies of this dissertation together in a larger project. Inquiries into mothers' labor force participation, employment, self-employment, and wages are not new; neither are considerations of intersections with social hierarchies, or of the factors driving differences between countries (Steiber & Haas, 2012; Hegewisch & Gornick, 2011). Previous work, however, has rarely considered more than two of these dimensions. By studying the effects of motherhood across social position, high- and middle-income countries, and three labor market outcomes, I am uniquely able to disentangle in what way the paid labor of three social position groups of mothers is affected by economic, policy, and cultural contexts.

Figure 1.1 Overview of the four studies in the dissertation



The second aim is to contribute to the work-family literature and the sociology of family and work by engaging with academic debates about the relative importance of economic, policy, and cultural contexts for mothers' labor market outcomes. The responsiveness of actors to policies is a longstanding debate in work-family research. Some authors have argued that policies convincingly shape behavior, whereas others stress constraints on mothers' available choices posed by economic squeezes and preferences (Hegewish & Gornick, 2011; Korpi, Ferrarini, & Englund, 2013; Mandel & Semyonov, 2006). An important aspect of this debate is push versus pull arguments, debating whether actors strive towards a specific work-family balance that diverges from the full-time worker norm or suffer from work-family conflict (Amin, 1997; Annink, den Dulk, & Steijn, 2016; Boeri, 2018; Chen, Vanek, & Heintz, 2006; Elson, 1999; Hughes, 2003; Jacobs & Gerson, 2004 Johansson Sevä & Öun, 2015). By examining the effects of economic, policy, and cultural contexts across mothers' social positions, I am able to hypothesize about the relative importance of these domains for three social position groups of mothers.

The third aim is to contribute to the stratification and intersectionality literatures by exploring which group of women experiences the largest motherhood effects. This study measures mothers' labor market *behavior* rather than lived experiences and refrains from measuring membership of other social groups, such as ethnicity or sexuality. Therefore, it cannot be said to apply a truly intersectional method (Choo & Ferree, 2010; Salem, 2018). I do, however, attempt to follow an approach that McCall (2005) refers to as 'intercategorical

complexity' and aims to research the inequality inherent in the intersection of multiple social dimensions – motherhood status and social position in this case (Nash, 2008). This is one of the most current debates in the sociology of family and work, in which both the relative size of motherhood wage effects across different social position groups and the tradeoffs between success on one labor market outcome versus another have been examined (Mandel, 2011; England, Bearak, Budig, & Hodges, 2016; England, Garcia-Beaulieu, & Ross, 2004; Pettit & Hook, 2005). I contribute to this debate by systematically examining the effect of social position on size of motherhood effects across three labor market outcomes, rather than only focusing on wage effects.

The fourth aim is to explore the geographical and developmental ranges of theories and concepts that are currently debated in sociological work covering industrialized countries. As shown in Table 1.1., I include countries from all levels of economic development in the first study (Chapter 2) and reduce the scope to middle- and high-income countries for reasons of comparability (reported in the second chapter). I rigorously apply theories from high-income countries to show their applicability and limitations in middle-income countries. I attempt to engage in a global form of sociological thinking, which takes into account mothers' paid work beyond the binary divide between developing and industrialized countries. I believe that studying paid work in broader developmental and geographical contexts can provide insights for two reasons. First, by focusing on the moderating effect of social position, which is still under debate in European and US sociology, the inclusion of middle-income countries can lead to new insights regarding the mechanisms driving differences found across industrialized countries. Second, including middle-income countries can answer questions regarding the universality of previous findings. Of particular interest is the question whether mothers' labor market outcomes and the moderating effect of social position in the often studied European and Anglo-Saxon countries are inherent to their level of economic development or more time-space specific. Throughout the four studies, I pay particular attention to the generalizability of findings across levels of development and evaluate the limits of comparability in the concluding sixth chapter.

Table 1.1 Number of countries per study per World Bank income group

	Study 1	Study 2	Study 3	Study 4
Low Income	20			
Lower Middle Income	28	11	6	2
Upper Middle Income	37	11	9	6
High Income	32	9	8	5
Total	117	31	23	13

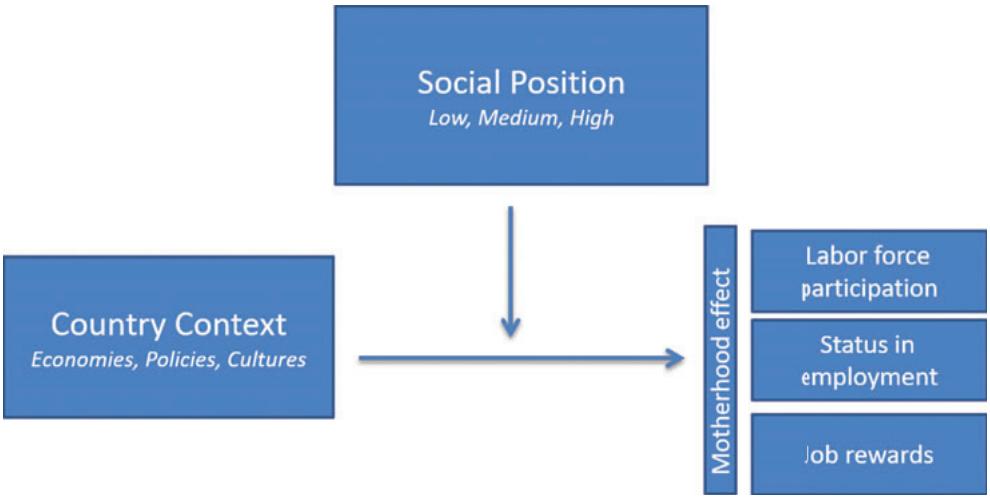
The fifth aim is to critically review the state of scientific knowledge by examining the quality and reliability of both the data I use and results I find. By studying motherhood effects across country contexts and social positions on three different labor market outcomes using a systematic research design, I can bring together estimates found in a single project to draw conclusions about mothers' broader labor market position. This is a worthwhile endeavor because it facilitates reflection on both the significant *and* the non-significant results – the latter being generally undervalued in quantitative social sciences (Benjamin et al., 2018; Fanelli, 2012; Lee et al., 2013). Including both high- and middle-income countries allows me to evaluate and report on the quality and availability of micro-datasets and country level indicators for sociological research. In the four studies, I use a range of datasets and consider a large number of potential indicators that can measure and explain differences in mothers' labor market outcomes. I critically evaluate which indicators are available in high- and middle-income countries alike, which are the most promising indicators across levels of development, and where data is lacking. In so doing, I aim to contribute to future research by pointing out both the most promising indicators and the gaps in our current data infrastructure.

1.2 Conceptual framework

In this dissertation, I thus study mothers' paid work by looking at the effect of motherhood on women's labor force participation, status in employment, and job rewards, as shown in Figure 1.2. In Section 1.2.1, I will expand on how scholars in sociology and development studies have conceptualized the relevance of motherhood for women's paid work in general and for the three labor market outcomes that are studied in this dissertation. These labor market outcomes are displayed on the right hand side of the schema in Figure 1.2 and represent the labor market outcomes on which the effect of motherhood is researched. I use two sets of explanatory concepts to explain the effects of motherhood on women's labor market outcomes: the country context in which mothers are embedded and their social position within that country. In Section 1.2.2.1, I will go through the concepts of economic,

policy, and cultural contexts that are used in this dissertation, detailing their associations with mothers' labor market outcomes found in previous research (Figure 1.2, horizontal arrow). In Section 1.2.2.2, I then introduce the concept of social position and explain how it is expected to moderate the effects of the country level contexts on mothers' labor market outcomes (Figure 1.2, vertical arrow). As such, the section is not intended to be an exhaustive literature review or a complete theoretical framework, which are provided in the separate chapters. This section focuses on the relevance of motherhood status, country contexts, and social position for women's labor market outcomes. It seeks to clarify which concepts are used and how they are understood. An overview of concepts per chapter is included in Table 1.2 in Section 1.3.

Figure 1.2 Moderating effects of social position on the relation between country contexts and mothers' paid labor



1.2.1 Perspectives on mothers' paid work

1.2.1.1 Sociological perspectives

In the sociological tradition of industrialized countries, mother's paid labor is primarily understood in terms of conflicting roles and time constraints (Byron, 2005; Pitt-Catsouphes et al., 2006). Especially when children are small, parents must ensure both around the clock care and sufficient income, usually requiring at least one full-time earner. This dual time obligation shapes mothers' commitment to the labor market much more than fathers' (Jacobs & Gerson, 2004). Gerson (2010) describes how the combination of what she terms *greedy institutions* and intensive mothering ideals lead to a general impression of paid work and family obligations as being mutually exclusive. In modern-day capitalist societies, the

notion that productive and reproductive work might be performed at the same time is almost unfathomable (Ekinsmyth, 2013). While scholars and policy-makers do yield that care and paid work responsibilities could both be performed at different times, any combination of the two tasks commonly invokes a sense of inferior commitment to either (Christopher, 2012; Cuddy, Fiske, & Glick, 2004; Hochschild & Machung, 2012). As famously described in Mary Blair-Loy's *Competing Devotions.*

> *Career oriented women who publicly spend too much time attending to family needs violate the work devotion schema. And work-dedicated women who evade or delegate family responsibilities violate the family devotion schema. And so, work-family conflict is born (Blair-Loy, 2003, p.2).*

In the sociological tradition in industrialized countries, motherhood is thus understood to affect women's labor market outcomes because of the impossibility of simultaneously meeting both full-time worker and full-time mothering ideals and demands. The conflicting role and time demands of paid and unpaid work, or mothers' "double shifts," are the basis of debates about the relationship between mothers' labor market outcomes, preferences and policies, which are discussed in detail in Section 1.2.2.

1.2.1.2 Gendered development perspectives

A certain duality exists in the conceptualization of mothers' work in the gender and development literature. The first leans perhaps more heavily on economic thought, connecting female labor force participation to the availability of work in different industries – implying women's care and paid work tasks are more easily (and more appropriately) combined in fields and offices than in factories (Goldin, 1995; Lincove, 2008; Mehrotra & Parida, 2017; Pampel & Tanaka, 1986; Rendall, 2013). This literature theorizes female employment primarily as dependent on the opportunity cost of not working, and recognizes mothers' particular situation only in as far as care tasks affect the utility function (Apps & Rees, 2001; Becker, 1991; Engelhardt & Prskawetz, 2004). Feminist economists have called attention to the inequality that is associated with economic growth (Çatagay & Özler, 1995; Gray, Kittilson, & Sandholtz, 2006; Horton, 1999; Rendall, 2013). These scholars have argued that the re-direction of the benefits of growth towards marginalized groups and communities is a promising strategy for realizing inclusive economic development (Gupta, Pouw, & Ros-Tonen, 2015; McGregor & Pouw, 2016). Such views are also reflected in reports from major international institutions such as the World Bank and the United Nations, which advocate for women's and mothers' employment as the road to both emancipation and inclusive

economic growth (Anderson & Eswaran, 2009; Gray, Kittilson, & Sandholtz, 2006; Iversen & Rosenbluth, 2008; Sassen, 1999).

Within the gender and development literature, a second strand of scholars have argued that women's and mothers' labor in developing countries is exploitative, precarious, and mostly need-driven (Elson, 1999; Kucera & Tejani, 2014). This school of thought leans more heavily on capability theory, qualitative fieldwork, and global value chain analysis (Barrientos & Kabeer, 2004; Barrientos & Smith, 2007; Nussbaum, 2001). Scholars in these fields spend ample time considering that a mother might effectively be better off if she refrains from engagement in paid labor, especially when jobs are insecure, filthy, dangerous, and low paid (Bhalla & Kaur, 2011; Elson, 1999; Kabeer 1997; Mehrotra & Parida, 2017; Safa, 1977). Mothers' employment is regularly put in the context of a neo-liberalist/capitalist agenda to convert unpaid agricultural activities into paid market work (Boeri, 2018; Salway, Rahman, & Jesmin, 2003). This strand of research is not dissimilar to sociological theories when it shows that mothers' employment is considered inappropriate in many middle-income countries (Amin, 1997; De Giusti & Kambhampati, 2015; Goldin, 1995; Salway, Rahman, & Jesmin, 2003).

1.2.1.3 Three conceptions of mothers' paid work

The key phenomenon studied in this dissertation is the effect of motherhood on women's labor market outcomes. In line with the ILO (2000) definition, I categorize work as taking place in the *labor market* when it is performed for pay in the formal or informal sector, in dependent employment, in self-employment, or in family businesses that generate income, but not when work is performed for subsistence. There is an almost unlimited number of ways to operationalize labor market outcomes within this definition. This includes participation, wages, hours, occupations, promotions, satisfaction, authority, autonomy, and so on. To study them all would go beyond the scope of this dissertation. As shown in Figure 1.2, I chose three different outcomes as examples of the most important facets of mothers' labor market position: labor market participation, status in employment, and job rewards. These three outcomes constitute three possible measures of mothers' paid work.

Labor market participation is operationalized as women's labor force participation in the second chapter and as mothers' paid employment in the third chapter. Both chapters discuss basic engagement in paid market work. Previous work has stressed the relevance of employment for mothers' position in the household and society (Anderson & Eswaran, 2009; Iversen & Rosenbluth, 2008; Kabeer, 1997; Matysiak & Steinmetz, 2008; Stockemer & Byrne, 2012). Motherhood, or the responsibility for the care of children, is understood to be associated with both different preferences for paid work and the opportunity cost of not working (Becker, 1991; Connelly, 1992; Del Boca, Pasqua, & Pronzato, 2009; Gerson, 2010;

Gutiérrez-Domènech, 2005; Kremer, 2007). Maternal employment thus measures mothers' access to the labor market as the extent to which women with care responsibilities for dependent children combine their mothering roles with an attachment to the paid labor force.

Chapter 4 considers mothers' status in employment. The primary focus is on whether mothers engage in paid labor through self-employment or dependent employment. In this chapter, motherhood is understood to affect labor market outcomes through the presence of current care tasks. Motherhood might affect the type of labor relation, because mothers are excluded from stable jobs in full-time dependent employment or because the more flexible and autonomous reconciliation of work and care responsibilities in self-employment is more appealing to mothers (Carr, 1996; Joona, 2017; Simoes, Crespo, & Moreira, 2016). Contemporary debates about motherhood and self-employment include the interaction with inequality structures and whether self-employment is associated with more or less work-family conflict (Annink & den Dulk, 2012; Budig, 2006; Carr, 1996; Ekinsmyth, 2011; Johansson Sevä & Öun, 2015; McManus, 2001).

Finally, in Chapter 5, mothers' job rewards are examined by looking at wage gaps. Motherhood is associated with a lower hourly wage through real or perceived lower work commitment and work-family conflict (Aisenbrey, Evertsson, & Grunow, 2009; Correll, Benard, & Paik, 2007). In this case, effects of prior work-care decisions on mothers' career standing can ripple through even after children have grown up (Anderson, Binder, & Krause, 2002; Baum, 2002; Gangl & Ziefle, 2009; Phipps, Burton, & Lethbridge, 2001). Motherhood is thus conceptualized as including those mothers that no longer perform care tasks on a day to day basis. This is a field where motherhood has long been associated with penalties, particularly for mothers who reduce their work commitment in favor of caregiving, thus moving away from ideal worker norms (Bardasi & Meyers, 2004; Budig & England, 2005; Budig, Misra, & Boeckmann, 2012; England, 2005; Hook & Pettit, 2005; Lundberg & Rose, 2000; Waldfogel, 1998). In recent years, research has paid much attention to determining which group of mothers pays the largest penalties, debating whether privilege in society at large increases or decreases the price of motherhood (Anderson, Binder, & Krause, 2003; England et al., 2016; Halldén, Levanon, & Kricheli-Katz, 2016; Napari, 2010; Wilde, Batchelder, & Elwood, 2010).

In summary, I study the effect of motherhood on women's employment, self-employment, and wages. These outcomes represent three facets of paid labor, from the engagement in paid employment per se, to the nature of that engagement, and the material rewards. Motherhood is expected to affect these labor market outcomes because the presence of children influences the income the household requires, the volume of care tasks to be performed, and the identities of women as perceived by themselves and their communities.

This implies mothers' needs, opportunities, time availability, preferences for paid work, and attractiveness to employers differ from those of childless women.

1.2.2 Main explanatory concepts

1.2.2.1 Country contexts

A large body of literature has shown that mothers' labor market outcomes are at least co-dependent on the country they live in and can partly explain the effect of motherhood on women's labor force participation, status in employment, and job rewards (Bose, 2015; Korpi, Ferrarini, & Englund, 2013; Pettit & Hook, 2009; Pfau-Effinger, 2005; Stier, Lewin-Epstein, & Braum, 2001). In this dissertation, I group the most used concepts into three broad domains of country level characteristics: economic, policy, and cultural contexts. I briefly summarize previous work outlining the relevance of these domains for motherhood effects on women's labor market outcomes.

Economic contexts refer to the structural conditions in the labor market and economy, which can provide both the necessity and opportunity to work. Economically, countries differ in the extent to which opportunities to engage in paid employment exist and whether mothers' incomes are required to sustain the family. Much of the literature on motherhood effects in the labor market draws on two strands of theories: New home economics, focusing on the principle of opportunity cost in the allocation of time, predict that employment behavior depends on the potential financial gains and cost of (not) working; and capability theory posits that economic conditions pose constraints on actors' employment behavior (Apps & Rees, 2001; Becker, 1991; Engelhardt & Prskawetz, 2004; Nussbaum, 2001). Motherhood is relevant to these decisions, because the need to provide constant care while more resources become necessary to maintain the larger household, changes optimal outcomes (Boeckmann, Misra, & Budig, 2015; Del Boca, Pasqua, & Pronzato, 2009; Gerson, 2010). Economic contexts can exacerbate the need for two-earner families, affect mothers' expected earnings levels, and can thus influence utility functions. Studies have shown that in some countries wages fail to offset the cost of childcare, depressing maternal employment, whereas in others mothers cannot afford to forego paid labor (Elson, 1999; England, Garcia-Beaulieu, & Ross, 2004; Gerson, 1985; Korpi, Ferrarini, & Englund, 2013; Steiber & Haas, 2012). Economic contexts thus affect labor supply as well as potential earnings and the type of work and occupations that mothers have access to.

When referring to policy contexts, I include policies that facilitate or impede the participation and position of mothers in the labor market. These policies, or sets of policies, that influence motherhood effects in the labor market are often referred to as work-family policies (Gornick, Meyers, & Ross, 1997; Korpi, 2000; Mandel, 2009; Mandel & Semyonov, 2006; Orloff, 2002; Pascall & Lewis, 2004; Stier, Lewin-Epstein, & Braum, 2001). Broadly

speaking, these work-family policies have aimed to facilitate the reconciliation of work and family life in one of three ways: by helping parents, primarily mothers, to split their time between paid work and care tasks; by outsourcing care tasks to promote a commitment to paid work; or by alleviating the economic pressure to engage in the labor market to promote a commitment to care work (Hegewish & Gornick, 2011; Pitt-Catsouphes, Kossek, & Sweet, 2015; Steiber & Haas, 2012). In this dissertation, I primarily examine the effect of work-family policies that aim to promote some form of engagement in paid work, and thus focus on the first two.

Work-family policies that aim for reconciliation whilst encouraging mothers to perform both paid and care work, which I sometimes refer to as time-splitting policies, have sometimes been linked to more conservative gender regimes (Kremer, 2007). The prime example, part-time work, has been associated with weaker labor market positions of mothers (Bardasi & Gornick, 2000, 2008; López Bóo, Madrigal & Pagés, 2010; Matteazzi, Pailhé, & Solaz, 2014). Admittedly, part-time work has also been shown to yield relatively high labor force participation and with more gender equality in total worked hours in paid and unpaid labor together (Chung & Tijdens, 2013; Tijdens, 2002). Paid maternity and parental leaves have been associated with a smoother return to the workplace and job retention, except when leaves are very long (Aisenbrey, Evertsson, & Grunow, 2009; Fallon, Mazar, & Swiss, 2017). Further leave and working hour policies, like annual leave and maximum working hours, have also been quoted as instruments to reconcile work and family (Gornick, Meyers, & Ross, 1997). The delegation of care tasks to allow for a stronger commitment to paid work has been exemplified by early childhood care and education policies. Formal, institutionalized childcare has been associated with higher employment levels and smaller motherhood wage effects (Abendroth, Huffman, & Treas, 2014; Budig, Misra, & Boeckmann, 2016; Gornick & Meyers, 2004). In summary, policy contexts affect mothers' labor market outcomes by reducing the incompatibility of time demands from paid work and unpaid care tasks.

Finally, cultural contexts, sometimes referred to as gender ideologies, are related to cultural appropriateness of mothers' paid work (Boeckmann, Misra, & Budig, 2015; Jacobs & Gerson, 2016; Goldin, 2006; Kremer, 2007; Mandel, 2009; Pfau-Effinger, 2005). Scholars have studied institutional settings and gender equality outcomes, as well as more attitudinal factors (Steiber & Haas, 2012). Gender equality outcomes are often used as a proxy for cultural contexts. A range of studies have associated gender equal outcomes with reduced gender gaps in all kinds of fields, including labor force participation and employment (Bose, 2015; Branisa, Klasen, & Ziegler, 2013; Iversen & Rosenbluth, 2008). Average attitudes in a country have more often been used to reflect the softer side of cultural contexts: the desirability of and support for mothers' paid work. Previous studies have shown that countries differ in the extent to which they believe mothers' paid work outside the home

negatively affects children's wellbeing, as well as the extent to which paid work or care tasks should be considered more fulfilling (Amin, 1997; Chadwick & Garrett, 1995; Christopher, 2012; Clark, Ramsbey, & Stier Adler, 1991; Ekinsmyth, 2014; Fortin, 2005; Kremer, 2007; Seguino, 2011; Wejnert & Djumabaeva, 2005; Zhou, 2017). As such, cultural contexts influence the extent to which the roles or identities of mothers are incompatible with those of workers and could potentially affect the motherhood effect on employment, as well as the intensity of that paid work.

1.2.2.2 Social position

Social position is introduced as a key explanatory variable in the second study (Chapter 3). The concept of social position serves as a way of operationalizing societal hierarchies and is one of the major stratifying axes in this dissertation. In a long sociological tradition, there are many ways of understanding social inequality structures (Bourdieu, [1986] 2013; Bourdieu & Passeron, 1990; Marx & Engels, [1844] 2009; Weber, [1922] 1968). These socio-economic status hierarchies or social classes have been operationalized through actors' incomes, occupational class, educational achievement, and socio-economic status, amongst other things (Blau & Duncan, 1967; Erikson & Goldthorpe, 1992; Grusky, 2014; Hout & DiPrete, 2006; Meron et al., 2014). Social hierarchies have also been shown to be qualitatively related to a range of labor market outcomes of mothers (Biersteker, 2010; England et al., 2016; Gutiérrez-Domènech, 2005; Korpi, Ferrarini, & Englund, 2013; Mandel, 2011).

In this dissertation, I do not study the existence of social position groups per se, but examine how they relate to mothers' labor market outcomes, as well as how they affect the way mothers interact with country contexts (Figure 1.2, vertical arrow). As such, I primarily attempt to measure how women's social position intersects with their motherhood status without contesting the existence of these social position groups in themselves (Crenshaw & McCall, 2013; Hancock, 2007). In recent years, social position has also been extensively considered in debates on the relative size of motherhood effects on employment, self-employment, and wages; particularly whether motherhood is a uniformly disruptive event to women's careers, or whether it compounds pre-existing inequalities between women in low and high social positions (Budig, 2006a, 2006b; England et al., 2016; Halldén, Levanon, & Kricheli-Katz, 2016).

Economically, mothers' social position affects how much income they can or have to generate in the labor market, the occupations they have access to, their working conditions, benefits, etc. This debate has been reflected in a large number of papers written about differences in female employment by social position (Abramo & Valenzuela, 2005; Aromolaran, 2014; Bhalla & Kaur, 2011; England, Gornick, & Schafer, 2012; Ganguli, Hausmann, & Viarengo, 2013; Lincove, 2008). Earnings inequality, through larger differential

returns to paid work, has also been associated with divergent labor market attachment across social position groups (Blau & Kahn, 1992; DiPrete, 2005; Mandel & Semyonov, 2005). Studies have shown that in some countries, mothers with a low earnings capacity are better off outside the labor force than in it, whereas they are forced into work in others (Elson, 1999; England, Garcia-Beaulieu, & Ross, 2004; Steiber & Haas, 2012). In other words, social position affects how susceptible mothers are to the opportunities and constraints encapsulated in economic contexts.

Comparative research has also suggested that social position moderates the way mothers are affected by policy contexts (Korpi, Ferrarini, & Englund, 2013; Mandel, 2011). Social position affects the extent to which families are dependent on public policy for the provision of services like childcare (Bastos & Straume, 2016; Del Boca, Pasqua, & Pronzato, 2009; Gutiérrez-Domenèch, 2005). A range of studies in both industrialized and developing countries has also demonstrated that women in different social positions differ in the extent to which they are aware of policies and make use of them (Baird & Renolds, 2004; Biersteker, 2010; Bruneforth, 2015; Glauber, 2011). Third, in this thesis I consider that policies might affect specific labor market outcomes and not others, like wages versus employment participation, according to mothers' social position in the way that authors like Mandel (2011) and Shalev (2008) found to be the case for women in general. Thus, policy contexts differentially affect mothers in low, medium, and high social positions because of dissimilarities in their dependence on public policy, their awareness of, and capabilities to take-up these measures.

Finally, intersections of social position and motherhood status are expected to be relevant to the effect of cultural contexts through two mechanisms. First, social position groups could differ in the extent to which they are able to act on preferences and opportunities (Branisa, Klasen, & Ziegler, 2013; Fortin, 2005; Korpi, 2000). Indeed, a number of studies have shown that women in higher social positions disproportionally reap the benefits of advances in gender equality (Fortin, 2005; Kremer, 2007; Mandel & Shalev, 2009). Second, cultural expectations towards mothers' behavior might differ depending on their social position. Stigmatization of working mothers, for instance, has been associated with a much stronger distaste of manual and factory work than non-manual or home-based work (Boeri, 2018; Goldin, 1995; Kabeer, 2000; Mammen & Paxson, 2000). More recent studies have also highlighted that attitudes towards a mothers' employment behavior differs according to the preconditions of work, including whether the income is required to maintain the family, whether high-quality childcare facilities are available, or how much time parents spend with their children next to paid work (Grunow, Begall, & Buchler, 2018; Jacobs & Gerson, 2016). Cultural contexts have heterogeneous effects on mothers' labor market outcomes because

women in different social positions perform different kinds of paid labor and are unequal in their ability to act on preferences and opportunities.

1.3 Data and methods

1.3.1 Data and measurement

Mothers' paid work has been studied using a broad spectrum of methodological approaches (Pitt-Catsouphes, Kossek, & Sweet, 2015). There are many things to be said for studies that try to isolate the motivation of mothers' work-family choices in a specific context or to isolate the particular effect of an actor's characteristics or country's policies. The aim of this dissertation, however, is to discover patterns through which different country contexts are associated with a range of labor market outcomes for mothers in different social positions across high- and middle-income countries. This line of inquiry leads to a quantitative approach, which is well suited for measuring behavioral outcomes from a comparative perspective. While sacrificing a certain depth in understanding the micro-level mechanisms when behavior and policies are reduced to scales and variables, this method does have the significant advantage of greater generalizability and the potential to cover many more countries. In this dissertation, I gratefully profit from the valuable work done by so many colleagues in both quantitative and qualitative studies of mothers' paid work and rely on those insights when choosing the best indicators to measure complex underlying processes.

1.3.2 Measures of mother's labor market outcomes

In line with the conceptualizations described in Section 1.2.1, motherhood is understood as having or having had to take care of dependent children, rather than the biological determinant of giving birth. It is the presence of those care tasks, or the aftershocks of previous care responsibilities, that distinguishes mothers from women without dependent children in the labor market. In the presence of care tasks, mothers could be full-time care providers, full-time paid workers, or any combination thereof, but the decision about who provides care at which time must be or have been in the mother's universe. Effects of these behaviors can be limited to the period of time they are acted upon, or carry long term consequences.

Three datasets are used to measure motherhood effects on labor market outcomes: the sixth edition of the ILO Estimates and Projections of the Economically Active Population (EAPEP), the Integrated Public Use Microdata Series International (IPUMS International), and the online WageIndicator continuous volunteer survey. In the ILO EAPEP dataset, which contains estimates of the share of the population over fifteen years of age that is in the labor force (i.e. employed or unemployed), aggregate female labor force participation rates

in eleven age groups is used (ILO, 2011). As the EAPEP dataset contains only aggregate level data, mothers are not individually identified in this first study. A constructed measure, described in detail in chapter 2, is used to approximate average care burdens in the 117 countries in the study.

The second dataset, which is used in the studies presented in Chapters 3 and 4, is the IPUMS International (Minnesota Population Center, 2015). This dataset contains harmonized micro-data from censuses, and occasionally household or labor force surveys. Motherhood status is identified through a variable measuring how many of her own children the respondent shares a household with, as well as the ages of the oldest and youngest own child in the household. The IPUMS International dataset is used to measure two outcome variables of mothers' paid work: being employed (Chapter 3) and being self-employed (Chapter 4).

The third dataset, used in Chapter 5, is the WageIndicator dataset 2012–15 (Tijdens & Osse; www.wageindicator.org). The WageIndicator dataset stems from a continuous online volunteer survey run by the WageIndicator Foundation in almost 90 countries. The websites attract large numbers of visitors (c.f. 34 million unique visitors in 2017). Teasers invite visitors to complete a web survey with a lottery incentive. Respondents complete the survey in their own language, answering detailed questions about their education, jobs, working hours, and remuneration. Although the dataset, as a non-probability sample, requires extensive weighting procedures, it contains a rare combination of detailed information on women's hourly wages, occupations, and a range of other work-related characteristics from a single multi-country survey. It offers a unique opportunity to study 13 high- and middle-income countries that have been under-researched in comparative designs. Motherhood is self-reported and respondents provide additional information on children's ages, the use of childcare facilities, trade union membership, and shift work that allow for tests of individual as well as country level hypotheses.

1.3.3 Measures of country contexts

In the dissertation, a broad range of datasets are used to measure country characteristics in regard to economic, policy, and cultural contexts to answer the research questions of the four studies (Chapters 2-5). Different indicators are used depending on the theoretical mechanisms studied in the relevant chapter, as well as the requirement for country coverage. In some cases cruder measures were chosen over more detailed indicators in order to meet the dissertation's specific aim of expanding the analyses to include countries at different levels of economic development. The exact choice of variables for each study, detailed in Table 1.2, is also a consequence of the theoretical mechanisms and outcomes being measured. This can imply that there are no theoretical reasons to suspect a specific indicator is associated with motherhood effects on a particular outcome or that a different

operationalization of the concept will more accurately capture the researched relation. In order to provide the reader with full information, the concluding sixth chapter contains a set of appendices with the association between all variables and all outcomes, which are discussed in the main text only where it is substantively relevant.

Table 1.2 Overview of main concepts used in the four studies

	Study 1	**Study 2**	**Study 3**	**Study 4**
	Female labor force participation	Employment	Self-employment	Wages
Motherhood	Dependency scale	Own child under 15 years in the household	Own child under 15 years in the household	Has a child
Social Position		Relative education	Relative education	Occupational group
Economic contexts	- Economic development - Sector - Education	- Economic development - Economic inequality - Poverty	- Economic development	- Economic development - Economic inequality - Collective bargaining coverage
Policy contexts	- Pre-primary education - Maternity leave	- Childcare 0-2 - Pre-primary education - Maternity leave - Part-time work	- Childcare 0-2 - Pre-primary education - Maternity leave - Part-time work	- Childcare 0-2
Cultural contexts	- Women's political rights - Anti-discrimination law Religion	- Gender equality - Stigmatization of housewives and working mothers	- Gender equality - Stigmatization of housewives and working mothers	

Throughout the analyses, economic contexts are primarily a measure of opportunity versus necessity. In chapter 2, which studies aggregate female labor force participation in 117 low-, middle-, and high-income countries, two sets of variables measure economic structures and opportunities. The size of four sectors of industrial activity measures the broad distribution of available jobs across types of occupations, such as industrial and services work. Female enrollment rates in primary and secondary education, as well as their enrollment rates relative to men's, are used as proxies for opportunities. In the remaining chapters (3-5), opportunities are primarily measured on the individual level, through women's social position and a number of interaction terms between that position and country level contexts. To take

account of country differences that might be due to levels of economic development, per capita GDP is used as a control variable. The countries are also classified into low-, lower-middle, upper-middle, and high-income countries according to the World Bank definition for the relevant year. These country income groupings are used to split the sample for robustness checks of the effects of the country level indicators.

Chapters 3 and 5 introduce measures of inequality within the economic structure, operationalized as countries' scores on the GINI index and poverty rates. In the chapter on motherhood wage effects, collective bargaining coverage is used as an additional measure (Visser, 2015). Collective bargaining coverage has been repeatedly shown to condense wage inequality and has featured in a number of debates as created potential insider/outsider effects in the labor market (Blau & Kahn, 2003; Gartner & Stephan, 2004; Kahn, 2000). As chapter 4 on self-employment limits the analyses to effects of work-family issues, no indicators are used to measure economic contexts.

Measures for policy contexts included in the analyses are aimed at improving the reconciliation of paid work and care tasks. Broadly, they fall into two categories: those measuring policies that allow for the outsourcing of care tasks, like childcare, and those that allow mothers to split time between care work and paid labor, like part-time work. A measure of early childhood care and education is introduced in all four studies. Due to data limitation, the study on aggregate labor force participation only tests for enrollment in pre-primary education. In the study on wage effects (chapter 5), childcare under the age of 3 was available for all countries and found to be the more accurate indicator, as well as being closest to the individual level measure of childcare use. The studies on employment and self-employment test a number of enrollment and quality indicators in pre-primary education and childcare for the 0-2 age group. The first three studies (Chapters 2 through 4) all test measures for time-splitting work-family policies, whereas I control for this on the individual level in the fifth chapter. The length of paid maternity leave is introduced in all three chapters. In the third and fourth chapters, the share of women that work part-time is used to test the extent to which (dependent) employment is associated with full-time work.

Finally, cultural contexts contain two types of measures: one focused on measuring gender equality in economic and societal outcomes and another focusing on attitudes and cultural respectability of work-related behavior. For gender equality, I consider the presence of anti-discrimination legislation and women's political rights in the study on aggregate female labor force participation in low-, middle-, and high-income countries (Chapter 2). In the subsequent chapters, which limit the scope to middle- and high-income countries, more detailed measures are available. Chapter three on employment considers a summary measure of four gender equality indices that reflect the position of women in the labor market, institutions, and society. In chapter four, which studies the motherhood effect

on self-employment compared to dependent employment, I select only the economic participation and opportunity sub-index of the 2009 Global Gender Gap Report. To measure the acceptability of mothers' paid work, I use attitudes towards working mothers and full-time housewives from the World Values Survey and European Values Survey in chapters 3 and 4. These data are not available for 117 countries. Therefore, a measure of religious observation was used as a rough proxy in the second study on aggregate level labor force participation. Cultural contexts were not tested in chapter 5.

The four studies thus test the same country level contexts, but do not always use the same indicators. In the concluding chapter, therefore, I treat findings regarding the effect of economic, policy, and cultural contexts on motherhood effects across women's social position as indicative of their association with different four labor market outcomes, but do not claim to have measured their precise effect across the different conditions. The appendices of the concluding chapter, presenting the associations between all indicators and outcomes regardless of their inclusion in the original analyses of the four studies themselves, do aid in the interpretation of the robustness of these results.

1.3.4 Measures of social position

Social position, introduced in chapter 3, is operationalized in two different ways to ensure the measurement most closely matches the theoretical mechanisms and the sampled populations. In chapters 3 and 4, I chose an education-based measure, because a substantial share of the mothers in the study are non-employed and would therefore be difficult to classify through an occupation based measure. In chapter 4, studying the motherhood effect on self-employment, this measure has the additional advantage of avoiding discussions about the classification of the self-employed in traditional occupation-based class schemas (Müller & Arum, 2004). For both chapters, I use mothers' relative educational achievement. I choose a relative measure because the inclusion of both middle- and high-income countries suggests the absolute levels of education, like a university degree, would classify women in much more selective groups in some countries than in others. The measure, which is described in detail in the relevant chapters, divides women in each country into three groups containing about a third of the sample whilst harmonizing the coding of the social position variable within the three income groupings (lower-middle, upper-middle, and high-income countries).

In chapter 5, I analyze the motherhood wage penalty among working women, thus allowing for the classification of all women through an occupation-based measure.[2] Here, social position is operationalized using the European Socio-Economic Groups (ESeG_2014) classification (Meron et al., 2014). The ESeG_2014 is a multidimensional social classification tool that maps two-digit ISCO codes and status as dependent or self-employed worker to 31 socio-economic groups of employed persons. The 31 ESeG groups are recoded into

three social position groups that closely match the type of activities and tasks described in the theoretical mechanisms. I differentiate between low social position (skilled industrial employees and less skilled workers), medium social position (technicians, associate professionals, small entrepreneurs, clerks, and skilled service employees) and high social position (managers and professionals).

1.3.5 Analytical strategies

By the very nature of the comparative research project, the mothers whose labor market outcomes are studied, are nested in countries. I therefore use multi-level modelling techniques. The cross-sectional nature of the data furthermore makes a random effects design the self-evident modelling choice. I consequently employ a standard two-level random effects design in chapter two, measuring age effects on women's labor force participation in 117 countries. However, standard multi-level modelling techniques have been noted to yield sub-optimal coefficients when fewer than 30 countries are compared (Bates et al., 2015; Heisig, Schaeffer, & Giesecke, 2017; Stegmueller, 2013). All studies include a number of robustness checks, which are described in chapters 2 through 5, to test the sensitivity of the country level effects to different modeling specifications. Additionally, in the three subsequent studies, two different strategies are adopted based on sample sizes. Chapters 3 and 4 use the IPUMS International dataset, which provides large samples for each country. Therefore, I use two-step multilevel models: I estimate the individual level effects separately for each country using binomial[3] (chapter 3) and multinomial (chapter 4) logistic regressions. These regressions produce estimates of the motherhood and social positions effects. To address concerns about the comparability of the coefficients from logistic regressions across model specifications, as well as following general trends towards a greater focus on effect sizes in quantitative sociology, I report average marginal effects in these and the fifth chapter (Breen, Holm, & Karlson, 2014; Breen, Karlson, & Holm, 2018).

Due to the smaller sample sizes in the WageIndicator survey, I chose a different modelling strategy in chapter five, which estimates the motherhood effect on wages. Following a strategy proposed by Heisig, Schaeffer, and Giesecke (2017), I relax the usual assumption of hierarchical modelling that individual-level effects are equal across countries. I do so by adding random slopes to all level-1 control variables, thus allowing the effects of variables like age or weekly working hours to vary across countries. The modeling strategy in chapter five thus does rely on hierarchical models, allowing the estimations in countries with smaller sample sizes to borrow strength from the larger ones, and country-specific effects are derived through empirical Bayes' estimates.

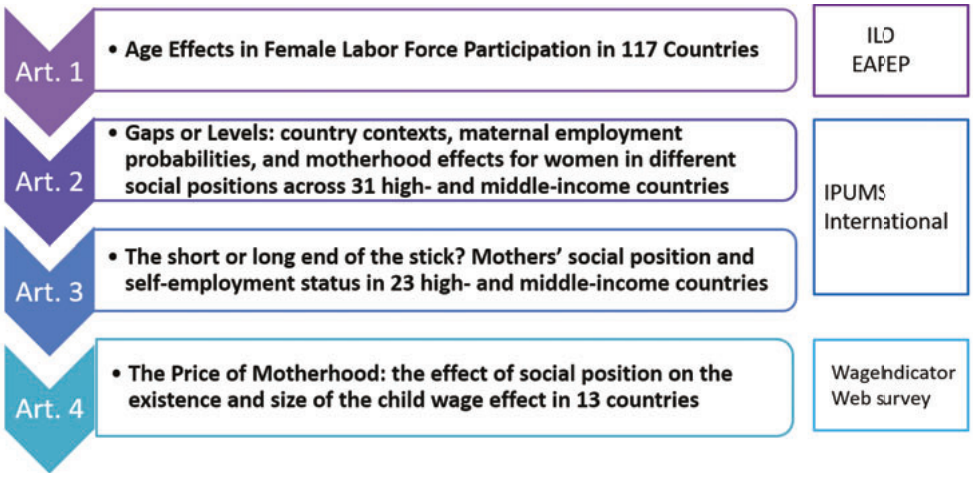
Finally, these estimation strategies and data choices imply the study has a number of limitations. First and foremost is the cross-sectional nature of the data. This limitation, at

least at this point in time, is inherent to the research design of studying a large number of middle- and high-income countries with the aim to discover broad patterns in motherhood effects in the labor market. Certainly longitudinal models have the advantage of being better able to address issues of selectivity and reverse causality. A number of longitudinal datasets also include detailed indicators on spousal characteristics, parental background, preferences and other valuable information. The available datasets, however, impose strong geographical and developmental limitations on researchers. I accept that my choice prevents me from using longitudinal modelling techniques, from employing household perspectives, or acquiring the most detailed indicators for that matter. I also refrain from making causal claims. My goal in this dissertation is not to provide answers with such certainty or finality as to close an unsolved debate, but to open it. Results should be interpreted as descriptive and aim to provide an overview of patterns of motherhood effects in the labor market as they are found in a globalizing world.

1.4 Chapter summary

The analyses starts from a birds' eye view of aggregate female labor force participation across all levels of economic development, i.e. from the basic condition of labor supply, and gradually move down to more detailed measures of mothers' labor market outcomes at lower levels of analysis in high- and middle-income countries. It is presented in four substantive chapters, which were written as separate articles and can be read independently of each other, as shown in figure 1.3. The subsequent chapters do follow in part from questions arising from the previous studies and reflect the evolution of my own thinking.

Figure 1.3 Overview of the four articles in the dissertation



Chapter 2 is a broad study of the level of female labor force participation across low-, middle-, and high-income countries. We[4] ask which country level characteristics can explain age effects in aggregate female labor force participation in 117 countries at very different levels of economic development. We test the effect of economic conditions, absolute and relative education levels, work-family policies, as well as cultural contexts. We find that economic development and educational indicators, including the well-known U-shaped relationship between economic development and female labor force participation, primarily explain the country patterns found for women below 20 and over 55 years of age. Effects of work-family policies and cultural contexts, on the other hand, are more closely associated with the labor force participation of women in age groups that are most likely to care for dependent children.

We find that the female labor force participation rate of the prime age group is higher in countries with higher enrollment in pre-primary education and where women's political rights are more entrenched, while they are lower in countries with more pervasive religious observance. These results suggest, be it indirectly, that motherhood effects are in fact sizeable enough to drive country differences in aggregate female labor force participation. These empirical results validate the focus on motherhood effects in the remainder of the dissertation. Results indicate that the labor force participation of women in the prime age group starts rising at about mean levels of economic development and that higher care burdens start being associated with lower labor force participation somewhere at the transition from lower- to upper-middle-income countries, prompt the decision to focus the next three studies on middle- and high-income countries for motives of comparability.

In the **third chapter**, the scope of analysis is therefore re-adjusted to high- and middle-income countries, using the IPUMS International micro-data, in which women's motherhood and employment statuses are directly identifiable. The ability to distinguish between women with and without dependent children in the sample allows me to study which factors affect women in general and which affect mothers specifically. Measuring both the share of mothers in paid employment (maternal employment *levels*) and the motherhood effect, i.e. the gap in employment participation between women with and without dependent children, this study addresses how mothers' employment varies between countries and seeks to explain effects of economic, cultural, and policy contexts.

This chapter also introduces women's social position as an important axis of stratification to aid understanding of unequal outcomes within countries, as well as heterogeneous effects of economic, policy, and cultural contexts. More favorable attitudes towards working mothers and gender equality are found to be associated with higher *levels* of maternal employment, but not with the size of the motherhood *effect*. Results indicate that early childhood care and education is associated both with higher levels of maternal employment and reductions

in the negative motherhood effect. Heterogeneous effects of country contexts by social position are negligible when measuring maternal employment *levels*, but substantial for motherhood *effects*. Results indicate that the positive effect of childcare enrollment is reserved to the medium and high social position groups. For the low social position groups, higher poverty rates and earnings inequality are associated with larger penalties. I argue that the effects of country contexts on maternal employment *levels* most closely measure the existence of opportunities and necessities to work, the higher social position group being more sensitive to the former and the lower social position group to the latter. The effects of country contexts on the motherhood *effect*, on the other hand, measure the size of time and role incompatibilities, with time incompatibilities shown to be most relevant to the low and medium social position groups and role incompatibilities to the medium and high social position groups. As the primary aim of this dissertation is to study how mothers' care responsibilities affect labor market outcomes across countries and social positions, these results lead to the further focus on motherhood *effects* in the remaining chapters.

In the **fourth chapter**, I explore the effect of motherhood on women's status in employment by studying the effect of caring for children under the age of 15 on women's probability of being self-employed. I test two theories about the motherhood premium on self-employment. The *mumpreneurship* thesis presents the motherhood effect on self-employment as the preference-based reconfiguration of the time and location of paid work activities around care tasks. The *disadvantaged worker* thesis, on the contrary, argues that mothers in the weakest labor market position are pushed into self-employment as the work-family conflict they experience in dependent employment makes them less desirable workers to employers than their counterparts without care responsibilities. In testing these two theories, I engage with stratification literature by exploring the relation between maternal self-employment and women's social position, and with work-family literature by examining time-based and role-based incompatibilities.

Exploring patterns of motherhood effects across high- and middle-income countries, I conclude that the *mumpreneurship* and *disadvantaged worker* theses should not be considered as conflicting hypotheses, but rather as addressing the motherhood effects of separate social position groups. I identify four groups of countries where one, both, or neither of the two mechanisms can be found at work. I then test a set of work-family policies and attitudinal indicators to explain cross-country variation. Results indicate that more negative attitudes towards housewives are associated with larger motherhood premiums for women in high social positions, whereas higher enrollment and smaller classes in pre-primary education increase the motherhood premium for all social position groups.

In **Chapter 5**, I study the effect of motherhood on job rewards by looking at the motherhood wage penalty. The study engages with the two sociological mechanisms for

explaining motherhood effects: time and role incompatibilities. I test one theory based on the former, the *time incompatibility thesis*, and two based on conflicting roles: the *foregone career* and the *disadvantaged worker* theses. I find larger penalties for mothers in low social positions (19%) compared to those in medium (10%) and high (9%) social positions. I also find evidence of larger penalties for medium social position mothers who adjust work patterns away from 9 to 5 office jobs. Results indicate that mothers in low social positions pay the largest penalties and that this disadvantage is larger in countries with larger income inequality and lower enrollment in formal childcare institutions.

In **Chapter 6**, I draw conclusions and discuss their theoretical implications, as well as reflecting on avenues for further research. After briefly summarizing the findings from chapters 2 through 5, I bring together the results from the four studies to answer the overarching research question. I then place the results in the contexts of the broader sociological, stratification, and work-family literatures by discussing the extent to which the five aims of the theses were met. In the final section, I discuss how gaps in our current knowledge and data availability can be addressed in future research.

End notes

1 The research questions of the four studies in the dissertations were rephrased in the research articles due to considerations related to peer review.

2 A previous version of chapter 5 operationalized social position using relative education and found similar results.

3 For this study, linear probability models were also tested and yielded the same results.

4 Throughout this dissertation, I refer to myself in the first person singular, except when referring to the two studies that have been submitted to peer reviewed journals as co-authored publications, when the pronoun 'we' is used.

Chapter 2

Labor Force Participation of Prime Age Women

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Abstract

In this chapter, we investigate the effects of economic conditions, families, education, and cultural contexts on the labor force participation rates of women in eleven age groups in 117 countries. We find that participation rates of young and older women are partly explained by sector sizes and the level of economic development. However, to explain the labor force participation rates of women between ages 25 and 55, we need to study families and cultural contexts. We find these women are more likely to participate when paid maternity leave schemes exist, enrollment in pre-primary education is higher, and countries are less religious.

2.1 Introduction

Women are increasingly seen as the motor of sustainable human development (UNDP, 2013; World Economic Forum, 2014). Policy makers interpret women's emancipation as a proxy for equal opportunities (UNDP, 1995), micro loan projects invest in women to improve the welfare of entire families (World Bank, 2012), women's labor market integration enhances potential for economic growth (World Economic Forum, 2014), and female labor incomes help reduce poverty (Buvinic & Gupta, 1997). Women's work is thus framed as a major force in shaping countries' economic and human development. In consequence, a growing number of policies are geared towards improving women's position and participation in societies.

Some debate, however, exists as to the extent to which these policies are beneficial to women themselves. First of all, as the World Bank Commission on Growth and Development (2008) comments in its final report, there are vast and unexplained differences in countries' experiences. Secondly, several authors have warned that in the case of women's employment quantity and quality cannot be equated (c.f. Norris, 1992; Horton, 1999). Labor force participation is not always a free choice (Elson, 1999) and may be limited to low paid and labor-intensive sectors and occupations (Çagatay & Özler, 1995; Kucera & Tejani, 2014). Low economic activity may also be desirable for some women, in particular when education or retirement is substituted for employment (van Klaveren & Tijdens, 2012; Clark & Anker, 1993).

While in the third case education is clearly preferable to employment, the first two dilemmas certainly include a tradeoff. Jordanian female teachers interviewed by Adely (2009) describe both how they entered paid work out of necessity and that it offers them new social networks and a legitimate space outside the domestic sphere. More materially, Sassen (1996) argues that even low paid work increases women's autonomy and grants access to the public domain. Considerable evidence exists that paid work strengthens wives' position in the household (c.f. Anderson & Eswaran, 2009; Schultz, 1990). Gray et al. (2006) point out that women's labor incomes offer an avenue for mending at least part of their general disadvantage, and Iversen and Rosenbluth (2008) find it is associated with a greater presence of women in the public domain. We do not argue here that female labor force participation equals gender equality, but will advance that it can be a starting point of a long process towards emancipation.

Any beneficial effects of female labor force participation, however, require that policy effectively target the group of prime age women that sustain families. In order to do so, we need to deepen our insights into the way in which female labor force participation differs across countries and between groups of women. Yet, our understanding of its dynamics is far from complete. In their overview article on female employment patterns, Steiber and

Haas (2012) point out that the large majority of studies either compare different women in a single country or women in different countries, but rarely both. In addition, with a few notable exceptions (c.f. Bloom et al., 2009; Lincove, 2008), research in the last decade has been split into studies of industrialized countries on the one hand and developing nations on the other.

In order to overcome this binary developing-industrialized divide, this chapter contributes to the discussion by evaluating which country characteristics can explain aggregate female labor force participation in 117 countries at very different levels of economic development. Moreover, we distinguish between age groups, arguing that women in various stages of a life course are confronted with different encouragements and impediments to labor force participation. We focus on four domains of country characteristics that have been established to affect female labor force participation rates in previous research. We firstly look at much studied indicators of overall female labor force participation, including economic conditions ruling the necessity and opportunities to work, as well as education. We then include two domains affecting mothers in particular: families, including both family composition and care demands, and cultural contexts that govern the extent to which women are encouraged or discouraged from working. We argue that previous macro studies have underestimated the effects of those domains by looking only at the female labor force as a whole, ignoring that policies may affect women of various ages in different or even opposite ways.

In order to disentangle the respective influences of the four domains and explore their interaction, we study them separately and refrain from employing the commonly used composite indices (such as the UN Gender Empowerment Measure or the Gender Development Index). We draw on a variety of international data sources to construct a unique country-level dataset of female labor force participation rates for eleven age groups in 2010 and selected indicators that can be attributed to the four domains in 117 countries. In Section 2.2, we review previous literature and Section 2.3 details the methodology and dataset. Section 2.4 reports the results and shows that models that take account of both country and age differences lead to a fuller understanding of aggregate female labor force participation. Section 2.5 concludes and explores avenues for further research.

2.2 Theoretical Framework and Hypotheses

We are far from the first researchers to look into the dynamics of aggregate female labor force participation. Many authors have pointed out that labor can take many different shapes, both productive and reproductive. (For an overview of the debate, see Tancred, 1995 or Benería, 1992.) In this chapter, however, we aim to shed light on women's remunerative work because we research the conditions under which women join the labor market. In line

with the ILO (2000), we define labor as paid, productive work, performed outside the purely familial sphere, but not necessarily in the formal labor market.[1] We thus focus on access to the labor market rather than women's position in it.

Since the 1970s, scholars from various fields of the social sciences have researched a range of formal and informal institutions to explain country differences and similarities in the extent to which women join the labor force (c.f. Boserup, 1970; Semyonov, 1980; Pampel & Tanaka, 1986; Clark & Anker, 1993; Lincove, 2008). Their work shows us that women's attachment to paid labor is rarely, if ever, unconditional. Around the world, women divide their time between household work, child rearing, home making, family enterprises, and the formal or informal labor market (Bardasi & Gornick, 2000; Barrientos & Kabeer, 2004). Women might both work or stay at home out of sheer necessity, societal status, or beliefs (Haas et al., 2006).

Female labor force participation, then, is informed by the way societies facilitate or impede it (Chang, 2004). In this context, institutions, defined as "webs of interrelated rules and norms that govern social relationships" (Nee, 1998, p.8) are essential. Various scholars have categorized countries according to their ideal-typical institutional settings or 'gender regimes,' describing "the key policy logics of welfare states in relation to gender" (Pascall & Lewis, 2004, p. 373). Some institutional arrangements, these scholars have convincingly argued, are more conducive to the labor force participation of women than others (c.f. Chang, 2000, 2004; Korpi, 2000; Whitehouse, 1992).

In addition, we argue that these institutional constraints weigh differently on women of different ages due to their distinct position in the life course. (For an overview of life course theories, see Heinz & Krüger, 2001.) Education may keep school age women out of the labor market while increasing the opportunities for graduates. Care tasks are omnipresent in the lives of mothers and grandmothers, but much less so for young women. While the timing of life courses is different in various parts of the world, we argue that on the aggregate level, women everywhere go through stages of school-going, transitions to adulthood, motherhood with care for young children, care for older children, and grand-motherhood. In short, we view women's capabilities to work or not as revolving around a balance of economic, educational, family, and cultural influences that affect women in different manners depending both on the country they live in and their position along the life course. In the remainder of this section, we study the relation between each of these four domains and the aggregate female labor force participation rate (FLPR).

2.2.1 Economic contexts

Economic contexts can provide both the necessity and the opportunity to work. While in some societies labor force participation is required to make ends meet, in others, families

may designate a single earner (Steiber & Haas, 2012). Furthermore, the availability of suitable jobs may draw women into the labor market or keep them out. Economic contexts affect female labor force participation through economic necessity and through the sizes of different sectors of economic activity, which determine the kind of work that is available (Pampel & Tanaka, 1986).

The relation between the level of economic development and aggregate female labor force participation is generally observed to be U-shaped (Haghighat, 2002; Lincove, 2008; Tam, 2011). However, as Semyonov (1980) observes, while economic development may be indicative of the opportunities women have in a labor market, the association is created by social factors. In recent years, Semyonov's argument has been confirmed in multi-country studies by Chang (2004) and Lincove (2008) who both find that there is no U-shaped relationship when countries at similar levels of development are compared or when studying countries' changes in economic development and in FLPRs concurrently.

The U-shaped relation, then, should be attributed to various social relations and labor market structures associated with higher and lower levels of economic development. Economic necessity is the first of those explanations. Increases in the welfare of workers in periods of industrialization are associated with the material possibility for wives to withdraw from paid labor as a sign of affluent family status (see Goldin (2006) for the USA, Safa (1977) for Latin American or Bhalla & Kaur (2011) for India). Elson (1999) describes this as the move from labor force participation for survival to a genuine choice for (middle class) women to work or not. In a study of Western and Eastern European countries, Haas et al. (2006, p. 767), too, argue that theorizing should "take account of the economic necessity for many women in less prosperous countries to work full time." Thus, where income from work is desirable in high-income countries and essential for survival in low-income countries, withdrawal from the labor market can be a luxury of sorts in middle-income countries. We expect that *the relation between a country's level of economic prosperity and the FLPR is U-shaped (H1a).*

However, it is questionable whether the abovementioned economic conditions have the same effect throughout the life course. Looking specifically at labor force participation of older women and men in 151 countries, Clark and Anker (1993) conclude that the FLPR of older women decreases with economic development and accompanying changes in the organization of society, such as the availability of old age pensions. The same expectation can reasonably be voiced for young people, who benefit from the increased educational opportunities that are associated with higher levels of economic development (van Klaveren & Tijdens, 2012). School and pension aged workers are thus exempted from the economic necessity to work. We expect that *a higher level of economic prosperity is associated with a lower FLPR of women of school-going age and approaching the retirement age (H1b).*

Broadly expecting the same result but following a different reasoning, scholars have studied the size of different sectors of economic activity as indicators of the opportunities for women in a labor market (Rendall, 2013; Mehra & Gammage, 1999; Schultz, 1990). In one of the first extensive works including 70 countries at various developmental levels, Pampel and Tanaka (1986) reason that women's jobs in agriculture disappear in the process of industrialization, thus leading to a decline in FLPRs. As economies grow further and a services sector develops, women are drawn back into paid work due to greater labor demand and the easier reconciliation of work and family in services compared to industry. Studying the evolution of female labor force participation rates in four middle-income countries – Brazil, Mexico, India and Thailand – Rendall (2013) recently argued that female employment opportunities increase as the available jobs become more intellectually, as opposed to physically, demanding.

Haghighat (2002), analyzing the effect of economic growth on the share of female employment in three sectors in 136 countries, notes that the effect of economic development on the female share of employment is negative in agricultural, flat for industrial employment, and positive on services employment, thus tracing out the U-shape. Studying 67 Turkish provinces, Tansel (2001) finds a U-shaped relationship with GDP if agricultural labor is included, but not when analyzing only the nonagricultural female labor force. Lincove (2008, p. 59) similarly concludes that while "service employment increases female participation… industrial labor [does not reduce it]." This suggests that Rendall's results might be indicative of a process where heavy industrial labor is replaced by more service and export oriented industry, a process that is currently prominent in Central America and South East Asia. Studying the manufacturing sector in these regions, Kucera and Tejani (2014) find that the initially labor intensive production methods in export oriented manufacture are associated with a feminization of the labor force. Rendall's shift from physical to intellectual work or Haghihat's observed increase in services employment should then be interpreted as the upward turn of the U-shaped relation between economic conditions and the FLPR. Therefore, we expect that *large agricultural and services sectors are associated with high FLPRs, whereas large manufacturing sectors are associated with low FLPRs (H2a).*

In agriculture, a disproportionally large effect may be expected on younger and older women, since many of the jobs in the sector are associated with early entry and late exit from the labor market. In its 2010 report, the UN's Food and Agriculture Organization points out that 60% of child laborers work in agriculture.[2] Thus, while the initial negative effect of declining agriculture on labor force participation is shared by all age groups, older and younger women are expected to remain out of the labor force to a greater extent. We expect *the positive effect of large agricultural and services sectors and the negative effect of*

large manufacturing sectors to exist for all women but to be strongest for young and older women (H2b).

2.2.2 Education

Women's opportunities to work can be further strengthened by investments in human capital. Training and education equip women for different occupations and raises their relative skill levels compared to men (c.f. Abramo & Valenzuela, 2005; Apps & Rees, 2010; Engelhardt & Prskawetz, 2004; Lincove, 2008). Some authors have also argued that a higher share of girls in schools leads to more gender egalitarian attitudes as boys and girls study together and are taught the same skills (c.f. England et al., 2012; Spierings et al., 2010). Education, then, can both increase opportunities in the labor market and can make paid employment more attractive compared to home making.

Particularly in economics, the relative position of women in a labor market is considered quintessential to their decision to participate. New home economics predict that as women´s wages and education go up, the opportunity cost of leaving the labor market for the sake of childbirth and care work increases (c.f. Engelhardt & Prskawetz, 2004; Apps & Rees, 2010). For a sample of 17 high- and middle-income countries, England et al. (2012) argue that higher educated women are more often employed than their lower educated counterparts because the opportunity-cost effect is stronger than the income-effect. Instead of withdrawing from the labor market when a husband's salary suffices (income effect), highly educated women refuse to forego the careers that will bring additional income and the application of their gained skills (opportunity cost). Tansel (2001) finds that highly educated Turkish women are more likely to be in the labor force than their lowly educated peers. Similar findings are reported by Bhalla and Kabeer (2001) for India and Aromolaran (2004) for Nigeria.

Studying 18 Latin American countries, Abramo and Valenzuela (2005) alternatively posit that the FLPR is higher at higher educational levels and household incomes because highly educated women have more means to outsource their homework. In turn, these career women create informal sector jobs in their households for lower educated women, resulting in a cascading effect. More women are drawn into the labor market as the vanguard requires other women to perform domestic tasks left undone. The literature thus suggests that higher levels of education increase the FLPR. It also suggests that this effect becomes stronger as women reach higher levels of education, increasing the opportunity cost of staying at home. Thus, we expect that *higher levels of female enrollment in education are associated with higher FLPRs and that this association is stronger for higher levels of education (H3a)*. We do not expect major age effects of education, aside from inclusion in educational institutions delaying labor market entry. We hypothesize that *the effect of female enrollment in education is negative for women below 20 (H3b)*.

Several studies indicate that male levels of education do not weaken but strengthen female labor force participation (Aromolaran, 2004; England et al., 2012; Ganguli et al., 2013; Spierings et al., 2010). Using data from the Integrated Public Use Micro Data Series (IPUMS), Ganguli, Hausmann, and Viarengo (2013) find that larger education gaps are positively associated with gender gaps in labor force participation. England et al. (2012) find positive effects of male education and posit that education "inculcates gender-egalitarian values." Spierings et al. (2010), researching female labor force participation in North Africa and the Middle East, find positive effects of a more equal share of boys and girls in education suggesting enrollment parity creates more gender egalitarian attitudes. Parity of boys and girls in the educational system both implies that women and men have approximately the same skills, as well as creates an environment in which gender egalitarian values can flourish. We expect that *more gender parity in educational enrollment is associated with higher FLPRs (H4).*

2.2.3 Families and policy contexts

Women's opportunities to participate in the labor force are in practice often limited by the division of care work in a society. As Barrientos and Kabeer (2004) point out, the burden of domestic and care work is an impediment to labor force participation for women in countries at any level of development. Care burdens, either by the extent to which they exist or their incompatibility with paid work, have the potential to hinder female labor force participation. Therefore, it is an important factor to be considered as a source of competing time demands that women face. It can be expected that the larger the time demand is, the smaller women's capabilities will be to participate in the labor force.

The most straightforward way to proxy the care burden is through the average number of children per woman. While the relation between fertility and labor force participation has been called endogenous (c.f. Steiber & Haas, 2012), a point we will address in Section 2.3, fertility is one of the most researched indicators of female labor force participation (c.f. Ahn & Mira, 2002; Bloom et al., 2009; Engelhardt & Prskawetz, 2004; Mishra et al., 2010). A number of studies have investigated whether fertility rates can effectively cause changes in FLPRs (Cruces & Galiani, 2007; Orbeta, 2005, Agüero & Marks, 2010; Angrist & Evans, 1998). Mishra et al. (2010) show that a 1% increase in fertility leads to a 0.4% drop in FLPRs in the G7 countries. Orbeta (2005) found that each child below school going age lowers a Philippine woman's probability of labor force participation by 7.2% while Cruces and Galiani (2007) found a 5% decline in Argentina and 3.5% in Mexico.

Inherently, the abovementioned effects are focused on mothers and grandmothers, who are caregivers in a way that younger women are not (for an overview of grandparenting in industrialized countries, see Arbor & Timonen, 2012). In one of the few studies including

developing countries, Bloom et al. (2009) report that the effect of one additional child per woman in a country reduced the labor force participation of women between age 25 and 29 by ten to 15 percent and that of women between age 40 and 49 by five to ten percent. Thus, we expect that *higher care burdens are associated with lower FLPRs of women of childbearing age, and not associated with FLPRs of women below age 20 and above age 50 (H5).*

While the relation between the total fertility rate and the FLPR was traditionally found to be negative, since the late 1980s several studies have shown a coincidence of high fertility rates and high female labor force participation in some high-income countries and a low-low combination in others. (For a historical overview, see Ahn & Mira, 2002; Engelhart & Prskawetz, 2004.) Cruces and Galiani (2007) point out that while dropping fertility rates can be directly linked to the increase in female labor force participation in Argentina, it explains only a small share of the hike in participation rates of Mexican women. This would suggest that some societies are more successful in mitigating the incompatibility of work and motherhood that others (c.f. Gornick, Meyers, & Ross, 1996; Engelhardt & Prskawetz, 2004; Apps & Rees, 2010).

Two of the most frequently employed policies to increase opportunities for mothers to stay in the labor market are childcare and maternity leave. Studying 22 industrialized countries, Mandel and Semyonov (2006) find that the number of fully paid weeks of maternity leave and the percentage of pre-school children in publicly funded childcare are both associated with a higher FLPR. There is a large body of literature that links paid maternity leave arrangements in industrialized countries, providing continued income and guaranteeing the right to return to one's old job, to continued labor force participation of mothers (c.f. Aisenbrey et al., 2009; Steiber & Haas, 2012; England et al., 2012; Gornick et al., 1996). Several authors, however, noted that arrangements allowing extremely long periods of maternity leave reverse the positive effect and actually decrease labor force participation (Styker et al., 2012; Hummelsheim & Hischle, 2012). We expect that t*he relation between the length of maternity leave and the FLPR forms an inverted u-shape, meaning that both no leave as well as very long maternity leaves are associated with lower FLPRs of women between 25 and 44, whereas brief maternity leaves are associated with higher FLPRs of women between ages 25 and 44 (H6a)*. Furthermore, we expect that *higher levels of wage replacement during maternity leave are associated with a higher FLPR of women between ages 25 and 44 (H6b).*

Stryker et al. (2012, p.35) argue that widely available and affordable childcare both reduces the time incompatibility of work and motherhood, as well as "reshape[s] cognitive expectations and normative evaluations about the acceptability or desirability of childcare provided outside the home and by someone other than the mother." For a number of European countries, they find public childcare facilities increase female labor force participation. These findings are confirmed by Gornick et al. (2006) as well as Hummelsheim

and Hirschle (2010). We expect that *higher enrollment in childcare is associated with higher FLPRs of women age 25 and above (H7a)*.

Hummelsheim and Hirschle (2010) find the effects of childcare arrangements in Belgium and Germany are largest for mothers with children under three and decrease or even disappear due to cultural attitudes at later ages. We therefore argue that care burdens begin to affect female labor force participation when women become mothers and are reduced as children grow older and less in need of constant care. We expect that *childcare and maternity leave provisions are not associated with the FLPR of women below age 25 and above age 44 (H7b)*.

2.2.4 Cultural contexts

Next to reducing competing time demands of care tasks and investments in women's capabilities, societies may also influence female labor force participation more indirectly. As Nee (1998, p. 10) points out, "[t]he cultural heritage of a society is also important because customs, myths, and ideology matter in understanding the mental models of actors." Through formal and informal institutions, countries may express a preference, objection or indifference to the inclusion of women in the labor market. Goldin (2006) argues that if the societal prejudice against working wives is strong, they will be much less susceptible to the economic motivations discussed in Section 2.2.1. Cultural contexts can affect the acceptability of a woman's choice to work, thus determining the popular image of appropriate female behavior (Hakim, 2000). By guaranteeing equal treatment, countries can provide women with a genuine choice to integrate into the labor force as well as convey a formal commitment to gender equality. Traditions reflected amongst others in the prevalence of religious beliefs may convene the inappropriateness of working. On the other hand, the visibility of women in public life, such as in politics or public office, can signal the de facto acceptance and respectability of such a choice.

In a sample of 13 high-income countries, Whitehouse (1992) finds no relation between the adoption of equality legislation and female labor force participation. However, taking a more global sample, Chang (2000, 2004) reports that countries that ratified the ILO gender conventions had higher FLPRs. While one may argue that such treaties can be implemented in a variety of ways and that they may be adopted both in countries with a long tradition of non-discrimination legislation as well as in those that make a policy shift at the moment of ratification, these results are encouraging. The mere presence of equality legislation may be the first token of a gender equality commitment and is at present the most suitable measure that is available for a large number of countries. We expect that t*he existence of anti-discrimination laws is associated with a higher FLPR of women of all ages (H8)*.

Quite a few studies have looked into the effect of religion on female labor force participation (c.f. Clark et al., 1991; Haghihat, 2002; Hummelsheim & Hirschle, 2010; Lincove, 2008). Contrary to studies into the effect of the intensity of religious views or practices (c.f. Amin & Alam, 2008; Chadwick & Garrett, 1995; Heineck, 2004; Lehrer, 2004), we treat religion rather as a proxy for the *mores* in a society as a result of the historical imprint that a denomination has left on a culture. The prominence of religious beliefs has been associated with lower FLPRs (c.f. Psacharopoulos & Tzannatos, 1989). Clark et al. (1991), for instance, explore the labor force participation of women in Islamic, African, Asian, Marxist, Western, and Latin American world regions. They report that, in comparison to Western countries, women in Islamic and Latin American countries are less likely to be in the labor force. Studying data from the World Values Survey from up to 97 countries, Seguino (2011) links religious institutions not only to more traditional beliefs with regard to gender roles, but also to more unequal labor market outcomes.

Islam in particular is often found to be associated with lower female labor force participation as women are more explicitly restricted to the private sphere (Clark & Anker, 1993; Lincove, 2008; Haghighat, 2005). We argue that all major religions have attributed different roles to women and men. This applies particularly for mothers, as women's role in religious thought is often associated with motherhood. However, we argue that the extent to which their teachings have left an imprint on society and influence behavior will be dependent on their pervasiveness or dominance in a country. A religion to which the large majority of a country's population is affiliated, will thus have a stronger influence on behavior than a smaller religious community. We expect that t*he pervasiveness of religions in general and Islam in particular, is negatively associated with the FLPR and that this association is strongest for women between ages 25 and 44 (H9)*.

Juxtaposed to the influence of tradition on women's roles in a society is their visibility in public life today. The equal presence or near absence of women in institutions, politics, and media is related to the self-evidence of a woman's choice to work (Chafez, 1990). Haghighat (2005) has argued that the political empowerment of women can moderate the effect of religion. Iversen and Rosenbluth (2008, p. 481), too, interpret the presence of women in politics as a signal that a society has loosened "its attitudes towards appropriate levels of gender specialization and traditional gender roles." Studying 23 OECD countries, Iversen and Rosenbluth (Ibid) find that countries with higher FLPRs have a higher representation of women in Parliaments, as do Stockemer and Byrne (2012) for a sample of 120 countries. Following this line of reasoning, we argue that the political rights and participation of women reflect the extent to which the presence of women in the public domain is accepted in a country. We expect that *a greater presence of women in the politics is associated with higher FLPRs of women of all ages (H10)*.

2.3 Data and Methodology

2.3.1 Data

For the study of aggregate female labor force participation, the most comprehensive dataset currently available is the 6th edition of the ILO Estimates and Projections of the Economically Active Population (EAPEP). The dataset aggregates and harmonizes data from selected national labor force and household surveys that are comparable for different age groups and include both urban and rural areas. EAPEP is a cross-sectional time series containing estimates of countries' population sizes, economically active populations and labor participation rates for women and men. Data for 191 countries for the time period between 1990 and 2010 are reported for 11 age categories. Due to the linear interpolation method used to construct the dataset, we do not perform any longitudinal analyses and include only the last available year, 2010. (For a detailed description of the imputation procedure: see ILO, 2011.) For reasons of reliability, 23 countries, mainly African nations and dictatorships, for which no actual observations are available, were removed from the sample.[3] Secondly, to avoid statistical complications, 32 countries whose labor force is below one million were left out of the analysis.[4]

To complete the Global Dataset on Women and Work, described in Appendix II-II, data for the four explanatory domains – economic conditions, education, families, and cultural contexts – were gathered from a range of freely available international sources. Variables were selected on the basis of their availability for both industrialized and developing countries. Because we aimed to maximize the number of countries in the analysis, we were occasionally forced to leave out variables that are undeniably important for a woman's decision to work or not but are not easily measured in some parts of the world. We perform the analyses on the final sample of 117 countries for which data on FLPRs as well as the four domains are available.

2.3.2 Operationalization

The dependent variable is the female labor force participation rate, which measures the share of economically active women to all women in the relevant age group in a country. The variable is broken down into ten five-year age categories and one age group for women aged 65 and over, creating 11 observations per country.

To measure the effect of economic contexts, we specified the *level of economic development* and the *relative size of economic sectors*. For economic wealth, we use per capita GDP in 2010.[5] To test the hypothesized U-shaped relationship, we standardize the variable with a mean of zero and a standard deviation of one, and calculate a square term.[6] In the absence of data on the size of industrial sectors as a share of total employment, we

measure sector sizes by their value added as a share of GDP.[7] We include predictors for agriculture, manufacturing, and services, which are three broad but non-overlapping sectors.

In the domain of education, we use variables for *female enrollment levels* and *gender parity in education*. We take data from 2010, except in a few cases where this year is not available, and we select the previous or following year.[8] We introduce two variables for the gross female enrollment rate in primary and secondary education, measuring the share of girls in education as a share of all girls in the relevant age category. Secondly, we introduce two variables for gender parity in education, reflecting the share of female to male enrollment in primary and secondary education. Due to non-availability of data for many developing countries, we do not include measures for tertiary education.

For the families domain, we formulated expectations regarding the care burden, maternity leave, and early childhood care. As noted in Section 2.2.3, several authors have argued that the choice to have children and to work is made simultaneously rather than independently of each other, bringing up questions regarding the direction of causality as well as whether the two processes may simultaneously be caused by other exogenous factors (Steiber & Haas, 2012; Browning, 1992). If such an endogenous relationship exists, only part of the variation captured by the fertility rate can be attributed to a direct effect of having children and we overestimate the effect. Therefore, we test the effect of care burdens both by introducing the total fertility rate as well as constructing a measure that attempts to address potential endogeneity. We create a scale containing four items affecting the mean care burden and measuring the consequences of past fertility decisions, rather than the concurrent fertility and FLPRs. We use the share of the population below age 15 to represent dependent family members and the share of the population above age 65 for the number of adults as a measure of people without small children with whom both work and care tasks could be shared. We also introduce the average age of first marriage of women and the average life expectancy of women to accommodate country differences with regard to the relative share of a life span spent nursing children.[9] The share of the population above age 65, age of first marriage, and life expectancy are reverse coded in order for a higher score on the scale to represent a higher care burden. The scale (Cronbach's alpha .79) yields near identical coefficients to a fertility variable in a bivariate regression but halves the effect sizes of fertility in the multivariate regressions. We interpret this as an indication of endogeneity and use the scale instead of the total fertility rate. We measure both the length in days and wage replacement levels of maternity leave. As we assume an inverted U-shaped relation between the FLPR and the length of maternity leave, we also calculate a squared term. Worldwide data on the enrollment of small children in childcare is not available. Therefore, we use pre-primary enrollment of both boys and girls as a proxy for early childhood care.[10]

To measure cultural contexts, we look at the existence of *anti-discrimination legislation*, the *religious background* of a country, as well as the *presence of women in politics*. For the existence of legislation protecting women from discrimination in the labor market, we look at ratification of the ILO treaties on maternity, non-discrimination and equal pay. We create a scale by adding the three items (Cronbach's alpha .68). To measure religious backgrounds, we use data collected by the Pew Research Center Forum on Religion and Public Life, containing data on adherence to various streams of Christianity, Judaism, and Islam, as well as Buddhism, Hinduism, Confucianism, a multitude of smaller Asian, syncretic, and animist religions, and the share of non-adherents. We construct a measure of 'religious dominance,' reflecting the size of the biggest religion in a country as a proxy for the cultural imprint of religion in general. Secondly, we construct a variable measuring the influence of Islam. To create the variable, we divide the share of the population adhering to Islam by the size of the largest religious group, or by the share of non-affiliated people if this is the largest group, creating a scale that runs from 0 (no influence) to 1 (Islam is the largest religion). Finally, to measure women's current level of representation in the public domain, we use a variable measuring women's right to vote, run in elections, hold government office, join political parties, and to petition officials. The variable is a four-point scale running from 0 (no rights) to 3 (rights are guaranteed both by law and in practice).

2.3.3 Analytical strategy

Taking into account that observations of different groups of women in a country are not independent from each other, we model the effects of the specified four domains on the FLPR of eleven age groups in 117 countries, using two-level hierarchical models (c.f. de Leeuw & Meijer, 2008; Hox, 2010). We specify a model with a random intercept for the countries as well as a random slope for the age variables, where $FLPR_{ij}$ is the FLPR by country and age group.

$$FLPR_{ij} = \gamma_{00} + \gamma_{10}Age_{ij} + \gamma_{20}Age_{ij}^2 + \gamma_{01}X_j + \gamma_{02}(X_j * Age_{ij}) + \gamma_{03}(X_j * Age_{ij}^2) + \gamma_{04}MLPR_{ij} + \delta_{0j} + \delta_{1j}Age_{ij} + \delta_{2j}Age_{ij}^2 + \varepsilon_{ij}$$

We introduce a random intercept, which consists of the grand mean intercept for all countries (γ_{00}) and a level2 error term (δ_{0j}) that contains the deviation from the mean intercept for each country. In the null model (model 1) we introduce only the dependent variable. Model 1 shows that 33% of the differences in participation levels are differences between countries (level 2 variance), whereas 67% are found within countries (level 1 variance). The within-country unexplained variance is vastly reduced when we include a second order orthogonal polynomial term for age (model 2), which introduces a contrast coded first and second order centralized variable for the 11 age categories.

Table 2.1 Null models of Female labor force participation

	Model 1	Model 2	Model 3
Constant	55.349***	55.349***	55.349***
Age		-4.673***	-4.673***
Age squared		-17.529***	-17.529***
Level 1 variance	485.826***	123.792***	51.256***
Level 2 variance (cons)	242.061***	274.973***	281.568***
var(age)			18.890***
var(age^2)			47.051***
Log Likelihood	-5916.0957	-5116.2534	-4819.6890
BIC	11853.67	10268.31	9722.118

Source: Global Dataset on Women and Work, sample contains 1287 age groups in 117 countries
**** p<0.01, ** p<0.05, * p<0.1*

The 117 countries in our sample differ vastly in terms of the timing of life events like childbirth, the end of full time education, and retirement. Therefore, in model 3 we allow the age effects to vary between countries and add a randomized age slope to account for the differences in the timing of different stages of women's life cycle across the countries. Thus, we include a grand mean effect of age ($\gamma_{10}Age_{ij}$) and age squared ($\gamma_{20}Age_{ij}^2$), as well as two level2 error terms ($\delta_{1j}Age_{ij}, \delta_{2j}Age_{ij}^2$). In our models, we restrict the level1 errors assuming homoscedasticity; identical models allowing for heteroskedastic errors (not shown) were run and yield similar results.

To measure the effects of the four domains, we use the runmlwin package in Stata. Firstly, we introduce a vector of country-level explanatory variables ($\gamma_{01}X_j$). We interact those variables with the randomized age and age square variables creating two cross-level interaction terms ($\gamma_{02}(X_j * Age_{ij}), \gamma_{03}(X_j * Age_{ij}^2)$) in order to estimate the heterogeneous effects by age groups. To test the effects of the different domains, we follow a three-stage approach and examine if the results hold in all models. For each of the four domains, we first test each hypothesis in one model and then run a model combining all indicators of the respective domain. Finally, we run a complete model including all four domains. We seek to measure only those effects that are specific to women. By controlling for the male labor force participation rate ($\gamma_{04}MLPR_{ij}$), we both isolate those effects that specifically apply to women, as well as filter out the non-gender biased measurement differences in the national data that the ILO uses as sources of the EAPEP dataset. We standardize all variables so as to make coefficients comparable in the multivariate models. To allow for a more intuitive understanding of the age effects than afforded by the relatively complicated interaction terms with the orthogonal polynomials in the regression models, we use predicted values to plot the differential effects on the eleven age groups. In order to

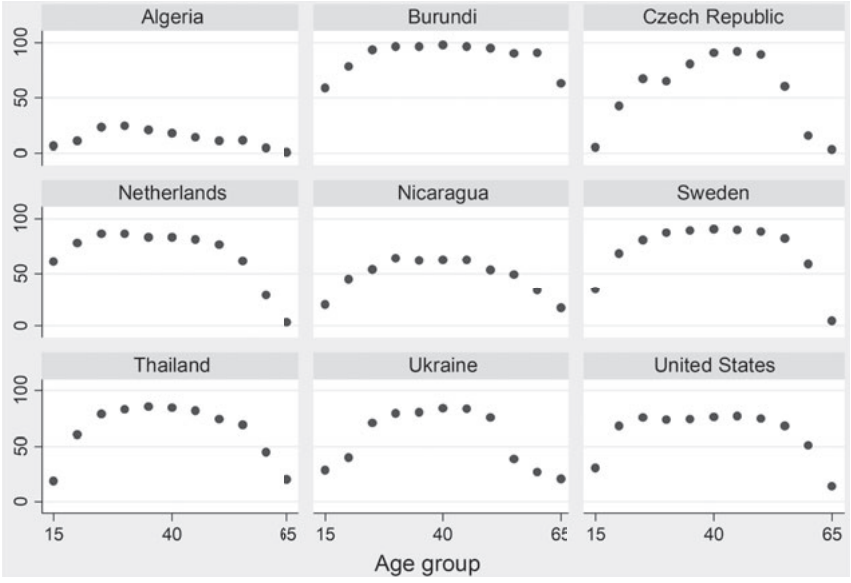
test the robustness of the results, we run the same models on split samples along country income groups and discuss the results in Section 2.4.6.

2.4 Results

At first glance, the same dominant pattern can be observed in all countries (Figure 2.1): the FLPR is lowest at the extremes of the horizontal axis, at young and old age, and higher in between. On average, 55% of women are in the labor force. Yet fewer than two in ten women above age 65 and fewer than three in ten women below age 19 are in the labor force, compared to seven in ten women between ages 30 and 49. However, both the level of participation across the life cycle as well as the exact timing of the peak and the rate of decline differ vastly across countries. Among the 117 countries are those whose FLPR at no point falls below 50% as well as states where it never reaches that mark.

When we plot the FLPRs per age group in nine selected countries we find diverse patterns (Figure 2.1). For instance, while low income Sub-Saharan African countries like Burundi have high levels of participation across age groups, many Middle Eastern and North African countries, like Algeria, show comparable patterns but on a much lower level of participation. Contrastingly, most Asian, Latin American, and European countries reveal large differences in levels of participation of the different age groups. Some countries, like the Czech Republic, and to a lesser extent the USA, show a double peak, indicative of mothers withdrawing from the labor market for a couple of years when children are young.

Figure 2.1 Female labor force participation rate by age for selected countries



2.4.1 Economic conditions

We hypothesized that the relationship between countries' level of economic prosperity and the FLPR was U-shaped, as well as that female labor force participation is higher in countries with large agricultural and services sectors and lower where manufacturing sectors are big. The relation between per capita GDP and female labor force participation takes the expected U-shaped form but is non-significant and thus cannot confirm the hypothesis. The linear term in model 4 (Table 2.2) shows the association is initially negative (-1.224, n.s.), forming the downward half of the U-shape and indicating that a higher per capita GDP is initially associated with a lower FLPR. The positive square term (2.233, n.s.) models the point at which the association turns positive, forming the upward half of the U-shape where GDP and the FLPR rise together. In model 5, agriculture has a strong positive effect (6.230, sig. $p<.01$), as does the services sector (5.437, sig. $p<.01$), implying that countries with larger agricultural and services sectors do indeed have higher overall FLPRs. We then control for both per capita GDP and sector sizes (model 6), so as to be able to measure the impact of sector size on the dependent variable for counties with the same level of per capita GDP and vice versa. The effects of agriculture become stronger and those of services weaker, but remain significant. The main effect of manufacturing is not significant in any model and the effect of per capita GDP remains non-significant but becomes positive.

The significant interaction between age and per capita GDP confirms that there are differences in the way age groups are affected. The negative coefficients of the interaction effects between age and GDP (-2.530, sig. $p<.01$) and the positive effects of the interaction with GDP squared (0.730, sig. $p<.05$) in model 6, indicate that the U-shape is more pronounced for younger and older women.

The FLPR at the vertical axis and the standardized GDP variable on the horizontal axis. Most age groups experience only a small dip in FLPRs between the lowest values for per capita GDP towards the mean, and then show a steady positive effect. The initial negative effect of GDP is larger for women below age 20 and above age 60, but the recovery is also quicker. Figure 2.2 also shows that the participation rates of women of different ages are most similar in countries with very low or high per capita GDP, where the regression lines for the age groups almost touch, whereas the participation rates of young and older women diverge most from the middle age categories in countries with mid-level per capita GDP, as is shown by the large distance between the age groups on the vertical axis. Thus, contrary to expectations, the relation between per capita GDP and the FLPR shows the most pronounced U-shape in the case of school age and older women.

Table 2.2 Effects of economic conditions on female labor force participation rates

	Model 4	Model 5	Model 6
Constant	51.798***	53.967***	54.052***
Age	-4.067***	-3.538***	-4.298***
Age squared	-3.466***	-2.827***	-3.224***
Per capita GDP	-1.224		5.089
Per capita GDPsquared	2.233		-0.053
Age * GDP	-1.636***		-2.530***
Age * GDP^2	0.467		0.730**
Age^2 * GDP	-1.541		-0.852
Age^2 * GDP^2	0.399		0.246
Agriculture		6.230***	8.042***
Age * Agriculture		0.416	-0.277
Age^2 * Agriculture		-1.091	-1.304*
Manufacturing		0.152	0.405
Age * Manufacturing		0.083	0.050
Age^2 * Manufacturing		-0.941*	-0.954*
Services		5.437***	3.802**
Age * Services		0.113	0.525
Age^2 * Services		-1.989***	-1.848***
Level 1 variance	24.123***	24.122***	24.119***
level 2 variance (cons)	219.771***	206.982***	191.303***
var(age)	6.405***	7.120***	6.131***
var(age^2)	28.142***	25.726***	25.622***
Log likelihood	-4378.2505	-4374.5806	-4363.1885
BIC	8871.062	8885.202	8905.379

Source: Global Dataset on Women and Work, sample contains 1287 age groups in 117 countries, controlled for male labor force participation rate
**** p<0.01, ** p<0.05, * p<0.1*

Figure 2.2 Age effects of economic conditions

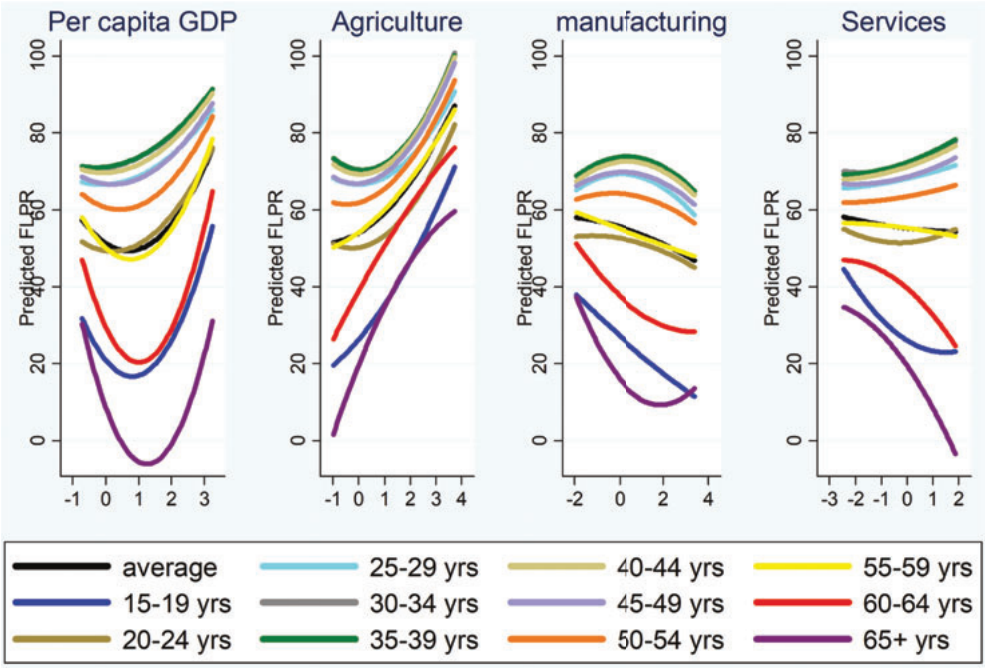


Figure 2.2 visualizes the U-shaped relation for each of the age groups, showing The effects of sector sizes are also different for women of different ages, as shown by the significant interaction terms and the diverging regression lines for these age groups (Figure 2.2). The largest age effects exist in countries with small agricultural sectors, large manufacturing sectors, and large services sectors. Larger agricultural sectors are associated with higher overall FLPRs, but figure 2.2 shows that the effect is much larger for women below age 20 and above age 60. Manufacturing has hardly any effects on most age groups, but negative effects on women under age 25 or age 55 and over. Service sectors have a positive effect on most age groups, but a negative effect on the labor force participation of women under age 20 and above age 60.

We thus find significant main effects of sectors sizes, but not of GDP; we find significant age effects for both. The younger or the older women are, the more strongly the relationship between their labor force participation rate and per capita GDP is U-shaped. This would suggest that the association between the level of economic prosperity and female labor force participation runs primarily through shifts in the timing of entry into and exit from of the labor market. Women are more likely to work in countries with larger agricultural and services sectors, while the predicted negative effect of manufacturing is found only for

younger and older women. When controlling for sector sizes, the non-significant effect of per capita GDP becomes positive, except for younger and older women.

2.4.2 Education

We hypothesized that both enrollment and gender parity in primary and secondary education are positively associated with the FLPR. In our models, we confirm that higher enrollment (3.206, sig. p<.05) and parity in primary education (3.392, sig. p<.1) have positive effects (table 2.3, model 9). One standard deviation increase in girls' enrollment in primary education or gender parity in primary education is associated with a three percent increase in the FLPR. Contrary to expectations, however, gender parity in secondary education has a negative effect (-4.365, sig. p<.05) and female enrollment in secondary education is non-significant. Thus, while higher levels of completed education may effectively improve women's human capital and their individual position in the labor market, we cannot confirm here that continued enrollment in education also improves aggregate female labor force participation.

Table 2.3 Effects of education on female labor force participation rates

	Model 7	Model 8	Model 9
Constant	54.038***	53.947***	54.029***
Age	-3.613***	-3.510***	-3.606***
Age squared	-3.133***	-2.741***	-3.107***
Girls' enrollment in primary education	3.691***		3.206**
Age * Primary	0.272		0.283
Age^2 * Primary	-0.279		0.025
Girls' enrollment in secondary education	-1.058		-0.194
Age * Secondary	-0.534*		-0.446
Age^2 * Secondary	-1.344***		-0.955
Gender parity in primary education		4.802***	3.392*
Age * Parity Primary		0.084	0.054
Age^2 * Parity Primary		-1.099*	-0.882
Gender parity in secondary education		-4.676***	-4.365**
Age * Parity Secondary		-0.382	-0.182
Age^2 * Parity Secondary		-0.275	0.145
Level 1 variance	24.123***	24.124***	24.122***
level 2 variance (cons)	217.554***	215.045***	206.750***
var(age)	6.938***	7.110***	6.923***
var(age^2)	27.101***	27.240***	26.722***
Log likelihood	-4379.149	-4379.865	-4375.3242
BIC	8872.859	8874.291	8908.17

Source: Global Dataset on Women and Work, sample contains 1287 age groups in 117 countries, controlled for male labor force participation rate
**** p<0.01, ** p<0.05, * p<0.1*

We find relatively few significant age effects of education on female labor force participation. The only significant age effects are found in the interaction term with girls' enrollment in secondary education in model 7, indicating that effects are more strongly negative for younger and older women. However, these effects disappear when gender parity in secondary education is introduced in model 9. We thus confirm the positive effects of primary education and gender parity in primary education. However, we reject the hypothesis that these effects would be stronger for secondary education, where we effectively find a negative relationship.

2.4.3 Families and policy contexts

We hypothesized that FLPRs will be lower in countries where the care burden for young dependents is larger. We also expect that labor force participation will be higher where brief maternity leave arrangements and higher wage replacement levels exist and a larger share of children are enrolled in pre-primary education.

To measure the care burden, we use the dependency scale described in Section 2.3.2. Its main effect is not significant. We find no significant effect of pre-primary enrollment and wage replacement during maternity leave, but the length of maternity leave shows the predicted inverted U-shape. The strongly positive untransformed term in model 11 (7.350, sig. $p<.01$) shows that women are more likely to work as they are entitled to longer periods of maternity leave. The negative squared term (-1.759, sig. $p<.05$) indicates that this effect wears off as the length becomes more extended and women are effectively less likely to work when maternity leave periods are very long. When tested together in one model (model 13), these results are unchanged.

However, while the grand mean effects do not reveal much effect of families on FLPRs, the picture changes when we distinguish between age groups. All indicators, with the exception of wage replacement during maternity leave, have significant age effects. The largest age effects are found in countries with low care burdens, moderately long maternity leave periods and high enrollment in pre-primary education. As shown in figure 2.3, the effect of a higher care burden is especially negative for women between ages 30 and 54, the group most likely to have dependent children at home. However, for women under age 20 and above age 55, the effect is positive, which could indicate that they substitute mothers in the labor force. Especially women of age 60 and above, whose labor force participation rate is relatively high in countries with a higher care burden, are much less active in societies with lower care burdens.

Figure 2.3 Age effects of families

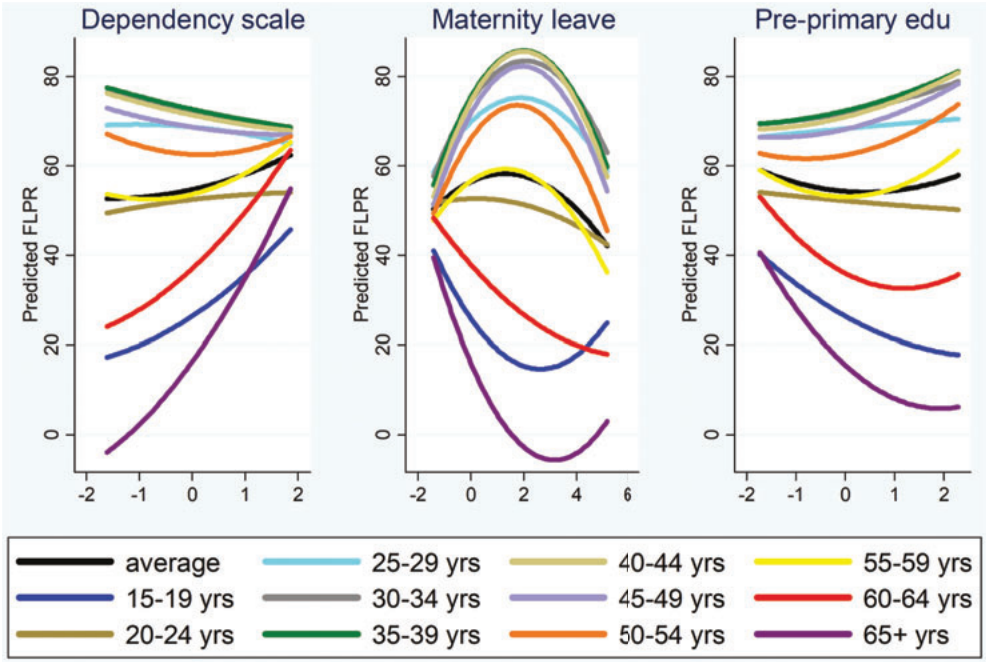


Figure 2.4 Age effects of cultural contexts

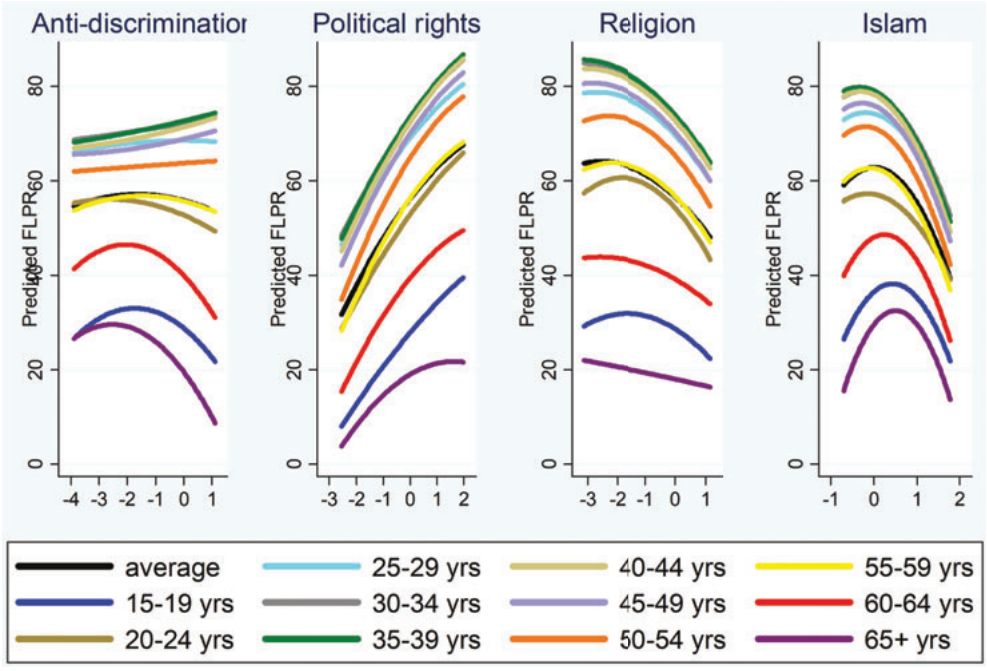


Table 2.4 Effects of families and policy contexts on female labor force participation rates

	Model 10	Model 11	Model 12	Model 13
Constant	54.015***	55.653***	53.952***	55.881***
Age	-3.606***	-3.301***	-3.528***	-3.329***
Age squared	-3.120***	-3.738***	-2.826***	-4.105***
Dependency scale	-1.019			3.339
Age * Dependency	0.589*			1.363**
Age^2 * Dependency	2.059***			-0.793
Wage replacement maternity leave		-0.549		-0.886
Age * Maternity pay		-0.250		-0.342
Age^2 * Maternity pay		-0.435		-0.210
Length maternity leave		7.350***		8.528***
Length maternity leave squared		-1.759**		-1.880***
Age * Length t maternity		0.574		1.203**
Age^2 * Length maternity		-4.913***		-4.722***
Age * Length Maternity^2		-0.183		-0.278*
Age^2 * Length maternity^2		1.057***		0.946***
Enrollment in pre-primary education			1.219	2.168
Age * Pre-primary			-0.214	0.488
Age^2 * Pre-primary			-1.859***	-1.723**
Level 1 variance	24.121***	24.124***	24.120***	24.121***
level 2 variance (cons)	231.140***	214.522***	230.056***	212.949***
var(age)	7.015***	7.026***	7.190***	6.537***
var(age^2)	25.726***	21.339***	25.482***	19.616***
Log Likelihood	-4380.299	-4366.093	-4380.587	-4357.971
BIC	8853.679	8868.228	8854.256	8894.944

Source: Global Dataset on Women and Work, sample contains 1287 age groups in 117 countries, controlled for male labor force participation rate
**** p<0.01, ** p<0.05, * p<0.1*

We also find significant age effects of the length of maternity leave. As figure 2.3 shows, the effect on some age groups is actually opposite to the grand mean effect. The length of maternity leave has the hypothesized inverted U-shaped relationship to the labor force participation of women between ages 20 and 59. However, it has U-shaped effects on women age 60 and above or below age 20. Variation in participation across age groups grows as pre-primary enrollment levels increase. For women between ages 20 and 59, the effect of pre-primary enrollment is positive, whereas it is decidedly negative for women under age 20, as well as those age 60 years and older.

We thus confirm the hypothesized negative effect of higher care burdens on the labor force participation of women between ages 30 and 54, but also find positive effects for both younger and older women that hint at possible substitution effects. We also find opposite effects across age groups for the length of maternity leave. The FLPRs of women between ages 20 and 59 are lowest in the absence of maternity leave and where leaves are longest, with higher participation at the values in between. We observe reversed effects for younger and older women, whose FLPR are the mirror image of the prime age groups.

2.4.4 Cultural contexts

We expected a positive effect of non-discrimination legislation and women's rights on female labor force participation, as well as a negative effect of religion in general, and Islam in particular. We do not find significant grand mean effects of anti-discrimination legislation. We do find significant positive effects of women's political rights. FLPRs are lower in countries where women hold few political rights and higher where they are guaranteed. They are also lower in countries where the biggest religion is larger and where Islam is dominant. The effect of political rights is weaker when controlling for all indicators together (model 17), but it remains significant and positive.

While the main effect of anti-discrimination legislation is never significant, the interaction terms with age are. The negative interaction with age squared in model 17 (-1.439, sig. $p<.01$) indicates that the existence of anti-discrimination legislation is associated with lower labor force participation of younger and older women. Figure 2.4 shows the negative effect under age 25 and age 60 and over, as well as the nearly flat lines of the non-significant positive effect on women between ages 25 and 54. While some age effects exist for political rights in model 15, there are no significant age effects when controlling for the other indicators (model 17). Both religion in general and the dominance of Islam, however, do interact significantly and positively with age, indicating the negative main effect is smaller for younger and older women. This implies that in line with expectations, the reduction in labor force participation accounted for by religion is focused on women of childbearing age and mothers. We thus confirm the positive effect of political rights on women of all ages and the negative effect of religion on all women, but especially on mothers.

Table 2.5 Effects of cultural contexts on female labor force participation rates

	Model 14	Model 15	Model 16	Model 17
Constant	53.923***	53.937***	53.926***	53.960***
Age	-3.489***	-3.478***	-3.466***	-3.504***
Age squared	-2.658***	-2.606***	-2.541***	-2.729***
Non-discrimination law	0.445			0.182
Age * non discrimination	-0.012			-0.111
Age^2 * non discrimination	-1.621***			-1.439***
Women's political rights		6.126***		3.770***
Age * Political rights		-0.154		-0.122
Age^2 * Political rights		-1.397***		-0.303
Size biggest religion			-4.146***	-4.065***
Age * Religion			0.656**	0.668**
Age^2 * Religion			0.872**	1.085***
Dominance of Islam			-7.916***	-6.685***
Age * Islam			0.040	-0.010
Age^2 * Islam			3.342***	3.079***
Level 1 variance	24.127***	24.134***	24.139***	24.126***
level 2 variance (cons)	231.129***	193.735***	147.184***	134.672***
var(age)	7.213***	7.180***	6.760***	6.760***
var(age^2)	26.263***	26.904***	16.544***	14.489***
Log likelihood	-4382.775	-4373.781	-4329.591	-4317.420
BIC	8858.632	8840.643	8773.743	8792.361

Source: Global Dataset on Women and Work, sample contains 1287 age groups in 117 countries, controlled for male labor force participation rate
**** p<0.01, ** p<0.05, * p<0.1*

2.4.5 Full model

We run a full model, combining the models of economic conditions, education, families, and cultural contexts to examine which effects remain significant predictors of the FLPR. Of the economic variables, the negative effect of manufacturing is now significant. There are also significant age effects of GDP, indicating the U-shaped relationship with the labor force participation of younger and older women remains relevant. Gender parity in primary education continues to have a positive effect on the FLPR, whereas parity in secondary education has a reduced negative effect. The educational variables now include significant age effects, which are most notable for gender parity in education. Both parity indicators now show that while younger and older women are among the most likely to work in countries with low scores on gender parity, they are least likely to work in countries with high parity.

While the effect of the dependency scale is non-significant, care arrangements retain their effects. The effect of the length of maternity leave is fully replicated in the total model. Enrollment in pre-primary education now has a negative effect and a higher wage replacement during maternity leave has a negative effect on younger and older women. Anti-discrimination legislation continues to be associated with a lower participation of young and older women, whereas political rights have a positive effect across the board. The results of religion and Islam are replicated as they were in the cultural contexts model. Thus, also controlling for economic development, families, and education, cultural contexts continue to affect FLPRs.

2.4.6 Robustness checks

As indicated in Section 2.3.3, to ascertain the validity of the reported results for all levels of development, we repeat all analyses on a split sample of low- and lower-middle, upper-middle and high-income countries. (Findings are not reported here but are available on request.) The findings show that analyses per income level replicate the U-shaped relationship with GDP, indicating that GDP starts having a positive effect already in lower-middle-income countries. The effects of sector sizes hold when performing the analysis on the income groups separately. The results indicate that agriculture is the most important driver of FLPRs in developing countries, while service sectors pull women of childbearing age and with small children into the labor force in industrialized countries. In upper-middle-income countries, the positive effect of agriculture exists exclusively for young and older women, while manufacturing has a negative effect on those same age groups. We also find that in high-income countries the effects of education are the opposite of the findings reported in Section 2.4.2, which is likely the effect of a lack of variation on these variables.

The effect of care burdens is not the same across income groups. In low- and lower-middle-income countries, higher care burdens are associated with higher FLPRs, whereas the negative effect in the whole sample is replicated in upper-middle and high-income countries. The effects of cultural contexts are reproduced in all income groups, except for a non-significant effect of the variable for religious dominance in high-income countries (the effect of Islam is still significant), which confirms the fading impact of religion on individual action in those countries. The effect of political rights is considerably larger in low- and lower-middle-income countries than in upper-middle and high-income countries.

Table 2.6 Effects of economic conditions, families, education, and cultural contexts on female labor force participation rates

Constant	53.772***	Age^2 * Length maternity^2	0.705***
Age	-4.065***	Enrollment in pre-primary education	-2.626*
Age squared	-3.234***	Age * Pre-primary	0.804*
Per capita GDP	-0.791	Age^2 * Pre-primary	0.110
Per capita GDP squared	1.270	Girls' enrollment in primary education	-0.074
Age * GDP	-2.981***	Age * Primary	0.371
Age * GDP^2	0.697**	Age^2 * Primary	1.150***
Age^2 * GDP	0.993	Girls' enrollment in secondary education	-3.694
Age^2 * GDP^2	-0.580	Age * Secondary	-0.255
Agriculture	1.818	Age^2 * Secondary	0.949
Age * Agriculture	-0.312	Gender parity in primary education	3.442**
Age^2 * Agriculture	-0.420	Age * Parity Primary	0.037
Manufacturing	-2.166**	Age^2 * Parity Primary	-0.861*
Age * Manufacturing	0.097	Gender parity in secondary education	-2.234
Age^2 * Manufacturing	0.066	Age * Parity Secondary	-0.757*
Services	-1.183	Age^2 * Parity Secondary	-0.377
Age * Services	0.444	Anti-discrimination legislation	0.651
Age^2 * Services	0.218	Age * Anti-discrimination	-0.312
Dependency scale	-2.185	Age^2 * Anti-discrimination	-0.957**
Age * Dependency	-0.372	Women's political rights	3.297***
Age^2 * Dependency	0.329	Age * Political rights	0.215
Wage replacement maternity leave	-0.117	Age^2 * Political rights	-0.372
Age * Maternity pay	-0.622**	Size biggest religion	-3.565***
Age^2 * Maternity pay	-0.348	Age * Religion	0.695**
Length maternity leave	5.509***	Age^2 * Religion	0.749**
Length maternity leave squared	-1.015**	Dominance of Islam	-9.026***
Age * Length maternity	0.832	Age * Islam	0.211
Age^2 * Length maternity	-3.427***	Age^2 * Islam	3.336***
Age * Length Maternity^2	-0.220		
Level 1 variance	24.120***		
level 2 variance (cons)	85.404***		
var(age)	4.874***		
var(age^2)	9.973***		
Log likelihood	-4258.872		
BIC	8975.988		

Source: Global Dataset on Women and Work, sample contains 1287 age groups in 117 countries, controlled for male labor force participation rate
**** p<0.01, ** p<0.05, * p<0.1*

2.5 Conclusions and Discussion

In this chapter, we have studied the country-level effects of economic conditions, education, families, and cultural contexts on FLPRs in 117 countries. We paid particular attention to the inclusion of developing countries in the sample and the distinctive effects of the predictors on women of different ages. Our study showed that the FLPR in all 117 countries first increases as women mature and then start decreasing until retirement. The timing of these patterns differs between countries, but they occur universally. We see that in most instances, women below age 20 and above age 60 cluster together and behave markedly different from the rest of the population. Women between ages 20 and 24 and between ages 55 and 59 often form a second group that alternately behaves like younger and older women or like the prime age group. Some effects we found applied exclusively to one cluster of age groups or indeed had opposite effects on various age groups. Such findings, we believe, signal the value of disaggregating the female population into age groups in macro level studies.

While we do not confirm a significant U-shaped relationship between the level of economic development and the FLPR for all women, we find that a U-shaped relationship does exist for younger and older women, even when we control for educational expansion in the final model. Thus, our hypothesis that economic prosperity would drive youth and older women out of the labor market can only be confirmed for the lower levels of GDP, with the opposite effect taking place at higher levels of development. The effects of sector sizes too, which are confirmed as hypothesized, appear to be driven by the youngest and oldest age groups. We conclude that economic conditions do affect the timing of initial labor market entry and eventual exit, but does little to explain the level of participation of women between ages 25 and 55.

We find a positive association between girls' enrollment and gender parity in primary education, but cannot confirm the hypothesized positive effects for secondary education. Based on human capital theory, we had expected effects of higher levels of education to be stronger than those for lower levels. Yet, contrary to micro level studies we find quite the opposite. It may be that mechanisms that distinguish between women on the micro level, do not directly translate to the macro level – that is to say, education may serve as a stratifying factor for women inside countries rather than between them. It may also be that our indicator of total enrollment and parity fails to capture the extent to which educational institutions are horizontally segregated along gender lines. Future research based on micro-data from low- and middle-income countries or at least disaggregated by educational field, may be able to answer this question.

As regards the labor force participation rates of mothers, we suggest the effects of families and cultural contexts are most promising. In particular, we find evidence of

substitution effects in maternity and care arrangements. While we observe that women of childbearing age are more likely to remain in the labor force as the length of paid maternity leave increases and to start to drop out again as the leave period is extended more, we see an opposite movement for women under age 25 and above age 55. Similarly, while women between ages 25 and 59 have higher FLPRs at higher levels of enrollment in pre-primary education, women above and below that age are less likely to work.

While we find few significant effects of anti-discrimination legislation and positive effects of political rights for women of all ages, the effects of religion are largest for women of prime age. We find that a greater religious heritage in a country is associated with lower FLPRs of women between age 20 and 59 years, but much less so with the participation of women who are younger or older than that. These results suggest that the gender stereotypes encapsulated in religious practices affect female labor force participation primarily through strong beliefs regarding the role of mothers.

As Barrientos and Kabeer (2004) have pointed out, care tasks are gendered in places around the world. While policies on care may differ greatly between low-income and high-income countries, the issues are universal. We believe that researchers who are particularly interested in the labor force participation of women of prime age may do well to focus on families, policies, and cultural contexts. What is more, our research shows that for this age group, predictors regarding families and cultural contexts have greater explanatory power than economic conditions or education do. Policy makers calling for job creation in female dominated sectors to help women increase family incomes (e.g. World Bank, 2011), therefore, should consider that they will primarily be drawing young and older women into the labor force, unless their efforts are accompanied by investments in care arrangements and reducing the stigma on work.

End notes

1 We interpret informal labor as more than a legalistic distinction between declared and undeclared work. It makes up a substantial part of labor markets in developing countries, including many own-account workers, subsistence or family workers, homeworkers and industrial outworkers, casual wage workers. Informal work exists in part of the economy that have not yet been integrated in the global economy, in family-owned businesses, in trade and commerce to provide cheaper products for working class families (street vendors), in registered businesses seeking to avoid taxes, in subcontract production of global value chains and so on (c.f. Chen, 2001).

2 FOA also stresses that disaggregated statistics of participation in agricultural activities are only very sparsely available and require further research.

3 Countries without actual observations are Afghanistan, Angola, Central African Republic, Channel Islands, Comoros, Equatorial Guinea, Eritrea, Gambia, Guam, Guinea, Guinea-Bissau, Democratic People's Republic of Korea, Libyan Arab Jamahiriya, Mauritania, Myanmar, Senegal, Solomon Islands, Somalia, Swaziland, Turkmenistan, United States Virgin Islands, Uzbekistan and Western Sahara.

4 Countries with less than 1 million inhabitants over 15 years old are: Bahamas, Bahrain, Barbados, Belize, Bhutan, Brunei Darussalam, Cape Verde, Cyprus, Djibouti, East Timor, Fiji, French Guiana, French Polynesia, Gabon, Guyana, Iceland, Luxembourg, Macau, Maldives, Malta, Martinique, Netherlands Antilles, New Caledonia, Qatar, Réunion, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Suriname, Tonga and Vanuatu.

5 Data on per capita GDP for Iran were taken from 2009.

6 The process of standardization does change the distribution of the variable and as such affects the second order polynomial, however, when the regression output is converted to predicted values this change is undone, so that results are unbiased.

7 In cases where data for sector sizes in 2010 was not available, data were taken from adjacent years. Other years that were included were: 2006 (New Zealand, Nigeria), 2007 (Cameroon, Iran), 2008 (Canada, Chad, Greece), 2009 (Algeria, Belgium, France, Ireland, Lithuania, Madagascar, Mali, Spain).

8 Primary and secondary enrollment and gender parity for different years than 2010 are included. For 2005 (Brazil, Malaysia); for 2006 (United Arab Emirates); for 2007 (Iraq, Namibia, Togo); for 2008 (Bolivia, Botswana, Georgia, Kuwait, Trinidad and Tobago); for 2009 (Canada, Ghana, Madagascar, Oman, Philippines, Russia, South Africa, Sudan (pre-cession), Thailand); for 2011 (Benin, Ivory Coast, Liberia) Data from Albania, Ivory Coast, Mauritius were taken from the World Economic Forum Global Gender Gap report 2011.

[9] Marriage data for different years than 2010 are included. For 2005 (Congo, Georgia, Honduras, Republic of Korea, Kuwait, Lao, Moldova, United Arab Emirates); for 2006 (Australia, Benin, Canada, Haiti, Hong Kong, Lesotho, Mali, Namibia, New Zealand, Niger, Papua New Guinea); for 2007 (Democratic Republic of the Congo, Dominican Republic, El Salvador, Iraq, Lebanon, Mozambique, Nicaragua, Pakistan, Peru, Philippines, Saudi Arabia, Sri Lanka, Ukraine, West Bank & Gaza, Zambia); for 2008 (Bolivia, Egypt, Ghana, Kenya, Liberia, Madagascar, Nigeria, Sierra Leone, Sudan, Turkey); for 2009 (Azerbaijan, Belarus, Belgium, France, Israel, Jordan, Kazakhstan, Kyrgyzstan, Switzerland, United Kingdom, USA, Vietnam); for 2011 (Albania, Austria, Bangladesh, Bulgaria, Cameroon, Chile, Costa Rica, Czech Republic, Denmark, Ethiopia, Germany, Iran, Ireland, Latvia, Lithuania, Nepal, Netherlands, Romania, Slovenia, South Africa, Uganda and Uruguay).

[10] Pre-primary enrollment for different years than 2010 are included. For 2005 (Brazil, Malaysia, Pakistan); for 2006 (Namibia, United Arab Emirates, Nepal); for 2007 (Hong Kong, Iraq, Trinidad and Tobago); for 2008 (Bolivia, Botswana, Georgia, Kuwait, Liberia); for 2009 (Canada, Ghana, Madagascar, Oman, Philippines, Russia, South Africa, Sudan (pre-secession), Thailand, Ivory Coast); for 2011 (Benin, Kazakhstan, Liberia). Data from Mozambique is retrieved from the ministry of education. Data from Malawi are for 2009 and retrieved from the Ministry for Gender, Children and Community Development. Data from Tunisia are for 2009 from the Observatory for Information, Training, Documentation and Studies on the Rights of the Child.

2.6 Appendices

Table 2.7 Countries in the analysis, by income level and world region

Europe and Central Asia	
Albania	Lower Middle Income Country
Armenia	Lower Middle Income Country
Austria	High Income Country
Azerbaijan	Higher Middle Income Country
Belarus	Higher Middle Income Country
Belgium	High Income Country
Bosnia and Herzegovina	Higher Middle Income Country
Bulgaria	Higher Middle Income Country
Croatia	High Income Country
Czech Republic	High Income Country
Denmark	High Income Country
Estonia	High Income Country
Finland	High Income Country
France	High Income Country
Georgia	Lower Middle Income Country
Germany	High Income Country
Greece	High Income Country
Hungary	High Income Country
Ireland	High Income Country
Italy	High Income Country
Kazakhstan	Higher Middle Income Country
Kyrgyzstan	Low Income Country
Latvia	Higher Middle Income Country
Lithuania	Higher Middle Income Country
Netherlands	High Income Country
Norway	High Income Country
Poland	High Income Country
Portugal	High Income Country
Republic of Moldova	Lower Middle Income Country
Romania	Higher Middle Income Country

Russian Federation	Higher Middle Income Country
Slovakia	High Income Country
Slovenia	High Income Country
Spain	High Income Country
Sweden	High Income Country
Switzerland	High Income Country
Tajikistan	Low Income Country
FYRO Macedonia	Higher Middle Income Country
Turkey	Higher Middle Income Country
Ukraine	Lower Middle Income Country
United Kingdom	High Income Country
North America	
Canada	High Income Country
United States	High Income Country
Latin America and Caribbean	
Argentina	Higher Middle Income Country
Bolivia	Lower Middle Income Country
Brazil	Higher Middle Income Country
Chile	Higher Middle Income Country
Colombia	Higher Middle Income Country
Costa Rica	Higher Middle Income Country
Cuba	Higher Middle Income Country
Dominican Republic	Higher Middle Income Country
Ecuador	Higher Middle Income Country
El Salvador	Lower Middle Income Country
Guatemala	Lower Middle Income Country
Honduras	Lower Middle Income Country
Jamaica	Higher Middle Income Country
Mexico	Higher Middle Income Country
Nicaragua	Lower Middle Income Country
Panama	Higher Middle Income Country
Paraguay	Lower Middle Income Country
Peru	Higher Middle Income Country
Trinidad and Tobago	High Income Country
Uruguay	Higher Middle Income Country

Venezuela	Higher Middle Income Country
Algeria	Higher Middle Income Country
Egypt	Lower Middle Income Country
Iran, Islamic Republic of	Higher Middle Income Country
Jordan	Higher Middle Income Country
Lebanon	Higher Middle Income Country
Morocco	Lower Middle Income Country
Saudi Arabia	High Income Country
Tunisia	Higher Middle Income Country
United Arab Emirates	High Income Country
Yemen	Lower Middle Income Country
South East Asia	
Australia	High Income Country
Bangladesh	Low Income Country
Cambodia	Low Income Country
China	Higher Middle Income Country
India	Lower Middle Income Country
Indonesia	Lower Middle Income Country
Japan	High Income Country
Korea, Republic of	High Income Country
Lao People's Democratic Republic	Lower Middle Income Country
Malaysia	Higher Middle Income Country
Mongolia	Lower Middle Income Country
Nepal	Low Income Country
New Zealand	High Income Country
Pakistan	Lower Middle Income Country
Philippines	Lower Middle Income Country
Sri Lanka	Lower Middle Income Country
Thailand	Higher Middle Income Country
Viet Nam	Lower Middle Income Country
Sub-Saharan Africa	
Benin	Low Income Country
Botswana	Higher Middle Income Country
Burkina Faso	Low Income Country
Burundi	Low Income Country

Cameroon	Lower Middle Income Country
Chad	Low Income Country
Côte d'Ivoire	Lower Middle Income Country
Ethiopia	Low Income Country
Ghana	Lower Middle Income Country
Kenya	Low Income Country
Lesotho	Lower Middle Income Country
Liberia	Low Income Country
Madagascar	Low Income Country
Malawi	Low Income Country
Mali	Low Income Country
Mauritius	Higher Middle Income Country
Mozambique	Low Income Country
Namibia	Higher Middle Income Country
Nigeria	Lower Middle Income Country
Rwanda	Low Income Country
South Africa	Higher Middle Income Country
Sudan	Lower Middle Income Country
Tanzania, United Republic of	Low Income Country
Togo	Low Income Country
Uganda	Low Income Country

Table 2.8 Description of dataset

Variable name	Variable label	Measurement	Source
country	Country	For a list of countries, see table 2.7	EAPEP 6th edition
age_group	Age group	Ten five year age intervals (15-19,..,60-64) and one age group for 65 years and above	EAPEP 6th edition
INCOMEGRP	Income group	Countries classified according to four income groups	World Bank
CULT_ REGION	World region	Countries classified according to six geographical regions	World Bank
MPR	Male labor force participation rate	Economically active men as a share of all men (Ø75.9, σ24.5)	EAPEP 6th edition
FPR	Female labor force participation rate	Economically active women as a share of all women (Ø55.1, σ26.2)	EAPEP 6th edition
MFPR	Total labor force participation rate	Economically active population as a share of all women and men (Ø65.5, σ23.9)	EAPEP 6th edition
LPRGAP	Gender participation gap	Male activity rate minus female activity rate (Ø20.8, σ17.7)	EAPEP 6th edition, own calculation
Economic structure			
ECON_ GDPPC	Per capita GDP	Per capita GDP in constant 2000 US Dollars (Ø7300, σ10,060)	World Bank Development Indicators
ECON_AGRI	Size agricultural sector	Agriculture, value added as a share of GDP (Ø12.5, σ12)	World Bank Development Indicators
ECON_ MANU	Size manufacturing sector	Manufacturing, value added as a share of GDP (Ø14.5, σ6.2)	World Bank Development Indicators
ECON_INDU	Size industrial sector	Industry, value added as a share of GDP (Ø30.1, σ10.1)	World Bank Development Indicators
ECON_SERV	Size services sector	Services, value added as a share of GDP (Ø57.6, σ12.7)	World Bank Development Indicators
Families			
POP_ FERTILITY	Fertility rate	Mean number of births per woman (Ø2.6, σ1.3)	World Bank Development Indicators
POP_OLD	Elderly as a share of the population	Share of the population aged 65 or over (Ø13.3, σ8)	EAPEP 6th edition
POP_YOUNG	Children as a share of the population	Share of the population aged 15 or under (Ø43.7, σ21.5)	EAPEP 6th edition
POP_ MARRIAGE	Mean age of marriage	Mean age of first marriage for women (Ø24.9, σ3.7)	UN World Marriage Dataset
POP_LIFEEXP	Mean life expectancy	Mean life expectancy for women in years (Ø73, σ10)	World Bank Development Indicators
SOC_ MATERNITY_ LENGTH	Length of maternity leave	Length of statutory maternity leave period in days (Ø111, σ58)	ILO TRAVAIL
SOC_ MATERNITY_ PAY	Wage replacement during maternity leave	Level of wage replacement (%) during maternity leave (Ø89.3, σ19.8)	ILO TRAVAIL
SOC_ PREPRIMARY	enrollment rate pre-primary education	Gross enrollment rate (%) in pre-primary education (Ø60.8, σ34.4)	UNESCO Institute for Statistics

Education			
EDU_FEM1	Girls' enrollment in primary education	Gross female enrollment rate (%) in primary education (Ø103.4, σ14.6)	UNESCO Institute for Statistics
EDU_FEM2	Girls' enrollment in secondary education	Gross female enrollment rate (%) in secondary education (Ø79.3, σ28)	UNESCO Institute for Statistics
EDU_PAR1	Gender parity in primary education	Ratio of female to male primary enrollment (Ø0.79, σ0.05)	UNESCO Institute for Statistics
EDU_PAR2	Gender parity in secondary education	Ratio of female to male seconary enrollment (Ø0.97, σ0.13)	UNESCO Institute for Statistics
Gender ideologies			
SOC_ EQUALPAY_ LEX	Existence of equal pay legislation	Dummy for the ratification of ILO convention C100	ILO
SOC_ NONDISCR_ LEX	Existence of non-discrimination legislation	Dummy for the ratification of ILO conventions 3, 103 or 183	ILO
SOC_ MATERNITY_ LEX	Existence of maternity legislation	Dummy for the ratification of ILO convention C111	ILO
CULT_ POLRIGHTS	Women's political rights	Four point scale 0 (no rights)…3 (full rights by law and in practice) (Ø2, σ0.44)	CIRI Human Rights Database
RELI_BIG	Size of the largest religious group	Ratio of the largest religious affiliation to the total population (Ø0.78, σ0.18)	Pew Research Center Forum on Religion and Public Life
RELI_CHRD	Christian heritage	Ratio of Christians to the largest (non) religious affiliation (Ø0.72, σ0.41)	Pew Research Center Forum on Religion and Public Life
RELI_MUSD	Muslim heritage	Ratio of Muslims relative to the largest (non)religious affiliation (Ø0.28, σ0.4)	Pew Research Center Forum on Religion and Public Life

Chapter 3

Motherhood Effects on Employment

A version of this chapter was submitted for publication by Besamusca, J.

Abstract

This chapter brings together two strands of literature, one focused on explaining the share of mothers in paid employment across levels of economic development and another on measuring heterogeneous effects of country contexts on the size of motherhood effects on employment. Studying mothers' employment across 31 high- and middle-income countries, this chapter aims to disentangle (1) how maternal employment *levels* and motherhood *effects* on employment vary across countries and social positions, (2) which economic, policy, and cultural contexts can explain cross-country variation, and (3) whether the effects of country contexts differ by social position. Results indicate that more favorable attitudes towards working mothers are associated with higher *levels* of maternal employment for all mothers and smaller negative *effects* of motherhood for women in low and medium social positions. Higher childcare enrollment is associated with higher levels of maternal employment, as well as more positive *effects* for women in medium and high social positions.

3.1 Introduction

To work or not, has probably been the most studied facet of mothers' employment worldwide (Steiber & Haas, 2012). We know that mothers' employment differs between countries (Bose, 2015; Goldin, 2006; Orloff, 2002) and that their employment levels are generally, but not always, lower than those of women without dependent children (Parrado, 2002; Uunk, Kalmijn, & Muffels, 2005). We also know that both mothers' absolute and relative employment levels vary *within* countries (England, Garcia-Beaulieu, & Ross, 2004; Mandel, 2011). Finally, a large body of research has revealed that at least some of these differences can be explained by economic conditions, cultural contexts, and the numerous policies that have been adopted to increase mothers' employment participation (Boeckmann, Misra, & Budig 2015; Bose, 2015; Gornick, Meyers, & Ross, 1997; Pettit & Hook, 2009; Stier, Lewin-Epstein, & Braun, 2001).

However, it is not always clear whether these economic, policy, and cultural contexts differentially affect women with and without dependent children, whether these effects are universal across high- and middle-income countries, and whether they apply equally to mothers in different social positions. In this chapter, I aim to contribute to this debate by bringing together two strands of literature on maternal employment *levels* and the specific *effect* of having dependent children to study how economic, policy, and cultural contexts affect mothers' employment in 31 high- and middle-income countries across three social position groups. I ask (1) how mothers' employment, measured both as the share of mothers in paid employment (*levels*) and as the gap between women with and without dependent children (*effects*), varies across countries and social positions, (2) how economic, policy, and cultural contexts are associated with cross-country variation in maternal employment levels and the size of the motherhood effect, and (3) how the effects of economic, policy, and cultural contexts are moderated by women's social position.

These new analyses are relevant for three reasons. First, by studying motherhood *effects* on employment simultaneously to maternal employment *levels*, I am able to distinguish between country contexts that affect mothers' work and those that affect *only* mothers. Second, cross-country comparisons of maternal employment by mothers' social position, which are still relatively scarce (for notable exceptions, see England, Garcia-Beaulieu, & Ross, 2004, Korpi, Ferrarini, & Englund, 2013, and Mandel & Shalev, 2009), can address gaps in our understanding of *which* mothers are affected by economic, policy, and cultural contexts (c.f. Steiber & Haas, 2012). Third, this study includes a broad range of countries that have traditionally been the focus of two separate strands of research and, thus, empirically tests the universality of country-level effects across levels of economic development.

The Integrated Public Use Microdata Series International dataset (IPUMS International), containing harmonized census micro-data compiled by the Minnesota Population Center (2015), offers a unique opportunity to answer the abovementioned questions. It is the only dataset of representative samples that allows for a comparison of a substantial number of non-OECD countries across the major world regions. Using two-step multilevel models, I show that taking into account both maternal employment *levels* and motherhood *effects* can lead to very different interpretations of countries' performance and social position effects. Furthermore, using data from 10 lower-middle-income, 11 upper-middle-income, and 10 high-income countries, I argue that childcare enrollment, attitudes towards working mothers, and poverty rates can explain maternal employment *levels* and motherhood *effects* across levels of economic development.

3.2 Maternal Employment and Motherhood Effects in Employment

3.2.1 Maternal employment and motherhood effects

In the combined literature on gender and development and the sociology of family and work, two broad conceptualizations of mothers' employment dominate: first, as the absolute probability that mothers are employed, independently of the incidence in other groups (Amin, 1997; England, Garcia-Beaulieu, & Ross, 2004; Goldin, 2006); second, as the *effect* of motherhood measured by the gap between mothers' employment participation and that of other groups, such as women without dependent children (Bose, 2015; Goldin, 2006; Gutiérrez-Domènech, 2005). What I will call the *levels* literature has, perhaps, been most common amongst scholars of gender and development and earlier sociological work. It is geared towards explaining the share of mothers that is engaged in gainful employment. In the *levels* literature, countries' levels of economic development have been associated with different employment levels of women and, by extension, of mothers. Maternal employment levels have been theorized to be low in middle-income countries through economic processes that move paid labor from homes and fields to factories, accompanied by cultural beliefs that maternal non-employment is a sign of affluence (De Giusti & Kambhampati, 2015; Lincove, 2008; Mammen & Paxson, 2000). Maternal employment levels are expected to be higher in high-income countries, where employment has been re-framed as an emancipatory activity through respectable white-collar jobs, gender egalitarian norms, and the expansion of higher education (Elson, 1999; Goldin, 1995, 2006; Mehrotra & Parida, 2017; Pampel & Tanaka, 1986). The *levels* literature excels at demonstrating how mothers' opportunities and constraints relate to general trends of maternal employment but pays relatively little

attention to isolating the specific condition of motherhood (Besamusca et al., 2015; Choo & Ferree, 2010; Steiber & Haas, 2012).

In order to isolate the driving factors behind maternal employment, many more recent studies in high-income countries attempt to isolate the specific *effect* of motherhood on women's probability of being employed. The *effects* literature measures gaps in employment participation of women responsible for the care of dependent children, whom I will refer to simply as 'mothers' for the sake of brevity, and women without such care obligations. Scholars have highlighted differences in the extent to which potential financial gains from paid labor meet financial needs and offset costs of hired care provision (England, Garcia-Beaulieu, & Ross, 2004; Steiber & Haas, 2012), the impact of (sets of) policies that reduce the time incompatibility of paid work and care tasks (Berger & Waldfogel, 2004; Gornick, Meyers, & Ross, 1997), and cultural preferences with regard to mothers' employment (Hakim, 2000; Pfau-Effinger, 2004). In the *effects* literature, mothers' engagement in paid labor is thus theorized as dependent on the time and role incompatibilities of paid work and unpaid care tasks, largely independently of the normality of mothers' engagement in paid employment.

Thus, the *levels* literature focuses on absolute and the *effects* literature on relative maternal employment levels. While these conceptualizations may appear to be two sides of the same coin, particularly when applied to single country studies, they can lead to very different results in country comparative work and in the identification of drivers of differences across countries and social positions. In the remainder of this section, I will explore how these two strands of literature theorize two axes on which mothers' employment differs: country contexts and social position.

3.2.2 Country variation in maternal employment and motherhood effects

Comparative research into mothers' paid employment has highlighted different country contexts that impede or facilitate maternal employment (Boeckmann, Misra, & Budig, 2015; Gornick, Meyers, & Ross, 1997). The literature on maternal employment *levels*, primarily theorizes country differences through economic conditions and opportunities. Scholars have stressed that paid work is often performed out of necessity rather than by choice. Economic hardship, poverty, and low wages, force mothers into paid employment (Elson, 1999; Steiber & Haas, 2012). In countries where poverty is more pervasive, more mothers would be expected to be forced into paid employment, because fewer families will be able to depend on a single family wage (Elson, 1999; Steiber & Haas, 2012). On the other hand, need-driven employment in low-paid and unsafe jobs has also been linked to a cultural distaste for maternal employment in middle-income countries. A range of studies in middle-income countries report that mothers' employment is seen as undesirable (Amin, 1997; De Giusti & Kambhampati, 2015; Goldin, 1995; Kabeer, 1997; Salway, Rahman, & Jesmin, 2003).

Additionally, gender equality has been associated with higher maternal employment (Haghihat, 2005; Iversen & Rosenbluth, 2008). Country-level outcomes on gender equality and aggregate attitudes have both been repeatedly linked to higher maternal employment levels (Algan & Cahuc, 2005; Fortin, 2005; Seguino, 2011; Steiber & Haas, 2012). More recent work has highlighted the importance of gendered institutions in a country, such as civil liberties and both occupational and marriage bars, as the origin of unequal outcomes (c.f. Bose, 2015; Branisa, Klasen, & Ziegler, 2009, 2013; Chang, 2000, 2004; Jütting et al., 2008). Fewer studies explored the role of other policies, although some evidence exists that maternity leave and enrollment in pre-primary education are associated with higher levels of maternal employment (Besamusca et al., 2015; Fallon, Mazar, & Swiss, 2017).

Country comparisons in the *effects* literature have focused on factors that are qualitatively distinct for women with and without dependent children. As such, they have looked at economic contexts in relation to the costs of outsourcing childcare to work compared to withdrawing from paid work to provide care (Korpi, Ferrarini, & Englund, 2013; Stier, Lewin-Epstein, & Braun, 2001). While poverty raises the need to two-earner households, several scholars have noted that earned outcomes do not outweigh the cost of childcare in industrialized countries with higher poverty rates (Boeckmann, Misra, & Budig, 2015; England, Garcia-Beaulieu, & Ross, 2004; Mandel, 2011). Contrary to the *levels* literature, scholars studying motherhood *effects* on employment would therefore expect that poverty is negatively associated with mothers' paid employment.

In the same line of argument, in countries where childcare has been assumed as an issue of public responsibility, the cost of outsourcing care tasks is reduced (Kremer, 2007; Mandel, 2009; O'Connor, Orloff, & Shaver, 1999; Orloff, 2002). The provision of policies aimed at reducing the conflict between care work and paid employment has featured prominently in this debate (Mandel, 2009; Stier, Lewin-Epstein, & Braun, 2001). Shorter working hours and generous leaves can allow more time for care tasks without the need to withdraw from paid employment or hire alternative care givers; brief periods of maternity leave have been associated with higher job retention (Del Boca, Pasqua, & Pronzato, 2009; Gornick, Meyers, & Ross, 1997; Steiber & Haas, 2012; Uunk, Kalmijn, & Muffels, 2005). Finally, the *effects* literature has suggested that, while gender equality is associated with higher *levels* of maternal employment, this is by extension of its effect on *all women* and thus independently from motherhood status (Mandel, 2011; Pettit & Hook, 2005). However, attitudes towards working and non-working mothers have been argued to be more closely related to beliefs regarding appropriate ways to balance good mothers and good workers roles (Christopher, 2004; Cuddy, Fiske, & Glick, 2004;Grunow, Begall, & Buchler, 2018; Jacobs & Gerson, 2016). Attitudes are therefore expected to be more relevant to the size of the motherhood effect (Pfau-Effinger, 2004; Ridgeway & Correll, 2004b; Zhou, 2017).

In summary, the *levels* literature would theorize that maternal employment revolves around opportunities and necessities. It is expected to be higher in contexts where the economic necessity to work is larger and where legal and cultural barriers to labor market entry have been removed. This leads me to hypothesize (H1) that (a) *higher levels of economic development, (b) higher poverty rates, and (c) more gender equality are associated with higher levels of maternal employment*. The *effects* literature would lead us to expect that the size of motherhood effect on employment depends on time and role incompatibilities. Country variation is driven by differences in the financial ability to outsource care tasks, the time to combine care tasks with work, and the cultural respectability of doing so. I would therefore hypothesize (H2) that (a) *lower poverty rates, (b) work-family policies that reduce the incompatibility of motherhood and paid labor, and (c) more favorable attitudes towards mothers' employment are associated with smaller negative effects of motherhood on employment.*

3.2.3 Variation in the effects of country contexts by mothers' social position

A second axis on which maternal employment may vary is by women's relatively advantaged or disadvantaged social position within a country. Sociologists have operationalized such societal hierarchies by looking at actors' income, occupational class, or social status, mostly interpreted through occupational prestige or educational achievement (for an overview, see Steiber & Haas, 2012). As a substantial share of mothers is non-employed, any occupation-based approach would have obvious drawbacks. Therefore, I conceptualize women's social position as their educational achievement relative to that of other women in the same country. Actors' social position co-determines how they interact with economic, policy, and cultural contexts.

In the *levels* literature, the effect of economic contexts on mothers' employment is theorized as dependent on whether the gains from paid employment are able (or sorely needed) to offset the cost of living (Becker, 1991; England, Garcia-Beaulieu, & Ross, 2004; Gerson, 2010; Wenk & Garrett, 1992). A range of studies in high-income countries has indicated that mothers in higher social positions, whose opportunities in the labor market outstrip the low and medium social position groups, are more likely to be employed, suggesting a positive relation between maternal employment and social position (Gutiérrez-Domenech, 2005; Haas et al., 2006; Pettit & Hook, 2005). However, the U-shaped relation between economic development and maternal employment, as described in the previous sub-section, suggests that the opposite might be true in middle-income countries. A range of studies in middle-income countries has shown that mothers in low social positions will often take on paid employment if necessary for their families to escape poverty (Connelly, DeGraff, & Levison, 1996; Lokshin, Glinskaya, & Garcia, 2000; Wejnert & Almagul, 2005). Mothers in

high social positions, however, would be expected to be less likely to be employed in middle-income countries, as has recently been highlighted for India (Goldin, 1995; Mehrotra & Parida, 2017; Michel, 1999; Semyonov, 1980). This implies that mothers in low social positions are more likely to be employed at lower levels of economic development due to the higher necessity to work and less likely to be employed at higher levels due to lower opportunities compared to mothers in higher social positions.

Beyond economic development, mothers in different social positions might also be differentially affected by policy and cultural contexts. Higher poverty rates also increase the need to work and have been shown to push low social position mothers into (precarious forms of) paid employment across levels of economic development, whilst having little bearing on the behavior of high social position mothers (Boeri, 2018; Elson, 1999; England, Garcia-Beaulieu, & Ross, 2004). The greater opportunities presented by enrollment in early childhood care and more gender equality are not theoretically expected to have inherently different effects on maternal employment *levels* across social position. However, several authors have demonstrated, in both high- and middle-income countries, that the (early) benefits of women's emancipation tend to be concentrated in higher social positions, where mothers possess the means to act on opportunities (Bastos & Straume, 2016; Biersteker, 2010; Mandel, 2011).

The *effects* literature, focused on how motherhood changes the organization of time for paid work and caregiving, does not presuppose that motherhood should affect one group of women more strongly than others *per se*. It has, however, spent considerable attention on the way in which country contexts increase or diminish motherhood effects by social position. If paid employment decisions are affected by the added cost of hiring formal or informal childcare, women in lower social positions should be expected to be more likely to experience negative motherhood effects (Michel, 1999; Steiber & Haas, 2012). As England, Garcia-Beaulieu, and Ross (2004) have noted, the cost of private childcare in the US is so high that many women with lower earnings potential are financially worse off *in* employment due to the cost of alternative care, than they would be *out* of it. Bastos and Straume (2016) suggest that this applies even more strongly to middle-income countries, where affordable public childcare and private daycare centers cater to entirely different income groups. Thus, one might expect that both poverty and policy contexts have greater impacts on mothers in low social positions, who have fewer resources and are therefore less able to address time incompatibilities using market-based solutions (Del Boca, Pasqua, & Pronzato, 2009; Gutiérrez-Domènech, 2005; Vlasbom & Schippers, 2006).

Finally, the association between the motherhood effect and role incompatibilities, conceptualized as attitudes towards working and non-working mothers, is expected to differ by social position (Jacobs & Gerson, 2016; Ridgeway & Correll, 2004a; Zhou, 2017). A range

of studies has shown that cultural distastes of working mothers often attach a signaling function of low status to maternal employment, because the stigma on work is stronger against manual than non-manual occupations and because low social position mothers are least able to forego the income from work (Kabeer, 1997; Mammen & Paxson, 2000; Steiber & Haas, 2012). In countries with more favorable attitudes towards working mothers, on the other hand, the positive motherhood effects would be expected to be stronger for most advantaged mothers, who are on average the most emancipated group (Mandel & Shalev, 2009).

In summary, the *levels* literature would expect that mothers in low social positions are more strongly affected by economic necessities, whereas their high social position counterparts are more affected by the opportunities presented by policy and cultural contexts. This would lead to the hypothesis (H3) that *higher per capita GDP and lower poverty rates are associated with more negative effects of being in a low social position (a), whereas higher per capita GDP, higher enrollment in early childhood care, and more gender equality are associated with more positive effects of being in a high social position.* The *effects* literature, on the other hand, would suggest that mothers in low social positions are more vulnerable to economic contexts and more dependent on the provision of policies to reduce the negative effect of motherhood on employment, high social position mothers are more sensitive to negative attitudes towards housewives, and both are less sensitive than the medium social position group to the stigmatization of working mothers. This leads to the hypothesis (H4) that *higher poverty rates and the absence of early childhood care are associated with more negative effects of being in a low social position (a), more negative attitudes towards staying at home are associated with more negative effects of being in a high social position (b), and more negative attitudes towards working mothers are associated with more negative effects of being in a medium social position (c).*

3.3 Methods

3.3.1 Data

To test how economic, policy, and cultural contexts affect maternal employment levels and the motherhood effect on employment across social positions in both middle- and high-income countries, I use the IPUMS International dataset.

Table 3.1 Sample sizes by country, motherhood status, and social position

		Mothers			Non-mothers		
		Low	Mid	High	Low	Mid	High
Armenia*	AM	28,475	12,910	12,986	21,682	5,225	8,722
Bangladesh*	BD	25,631	19,932	15,064	7,273	8,323	13,777
Belarus	BY	17,798	20,216	14,337	19,275	9,406	8,968
Botswana*	BW	15,030	5,864	7,495	11,242	9,725	11,216
Brazil	BR	26,991	16,730	8,986	13,016	14,152	10,125
Canada*	CA	18,345	10,961	14,104	25,116	8,814	12,660
Costa Rica*	CR	29,516	12,948	11,687	11,947	12,113	11,789
Dominican Republic*	DO	23,240	17,875	12,322	11,021	15,470	10,072
Ecuador	EC	25,168	18,075	12,091	9,525	13,071	12,070
France	FR	10,406	19,703	15,869	12,934	17,330	13,758
Ghana	GH	22,214	18,688	4,631	14,081	21,375	9,011
Hungary	HU	8,767	26,248	10,730	12,219	21,723	10,313
India	IN	33,711	15,644	11,839	7,845	9,657	11,304
Indonesia*	ID	30,656	11,445	16,443	10,666	9,207	11,583
Iran*	IR	24,920	19,009	8,712	8,092	14,549	14,718
Ireland	IE	9,506	20,525	13,401	8,999	16,437	21,132
Kenya*	KE	17,583	21,115	16,053	8,347	12,001	14,901
Kyrgyz Republic	KG	5,801	31,466	15,742	11,686	17,074	8,231
Mexico*	MX	22,518	17,575	15,713	8,932	12,057	13,205
Nigeria	NG	11,080	5,460	7,382	3,788	5,804	5,468
Panama*	PA	20,252	20,030	13,060	8,363	17,058	11,237
Portugal	PT	19,243	21,547	9,554	8,762	20,884	10,010
Puerto Rico*	PR	4,336	3,256	3,090	4,044	2,604	2,028
Romania	RO	15,111	23,097	8,538	14,560	18,202	10,492
South Africa	ZA	12,796	13,733	18,125	9,779	16,411	19,156
Spain	ES	19,945	13,681	10,998	15,334	15,351	14,691
Trinidad and Tobago	TT	5,802	8,317	4,509	4,119	7,020	6,081
United States	US	16,890	14,933	11,891	20,006	14,881	11,399
Uruguay	UY	20,811	14,654	16,202	10,352	11,336	16,645
Vietnam*	VN	29,304	17,650	9,241	9,805	13,999	10,001
Zambia*	ZM	21,340	16,939	16,678	7,970	10,790	16,283

*Note: * Excluded from analyses including the variable for attitudes towards working mothers and housewives*

IPUMS International contains harmonized census microdata, providing large samples for a diverse set of countries. I select all countries that ran surveys between 2009 and 2011,

the last available wave with a substantial number of countries, and included questions on motherhood, education, and employment status. This results in a sample of 31 countries across world regions. The sample includes Belarus, India, Kenya, Kyrgyzstan, and Vietnam in 2009; Brazil, the Dominican Republic, Ecuador, Ghana, Indonesia, Mexico, Nigeria, Panama, Puerto Rico, USA, and Zambia for 2010; and Armenia, Bangladesh, Botswana, Canada, Costa Rica, France, Hungary, Iran, Ireland, Portugal, Romania, South Africa, Spain, Trinidad and Tobago, and Uruguay in 2011. The full samples contain between 19,358 (Puerto Rico) and ten million (France) women, totaling over 50 million observations. For the analyses, I select all women between 18 and 55 years from the full samples of Puerto Rico (n=19,358), Botswana (n=60,572), Nigeria (n=38,982), and Trinidad and Tobago (n=35,848) and draw samples of 90,000 respondents with the same delineations for the other 27 countries, ensuring sufficiently large samples when the analyses are split by social position (table 3.1).

For the cross-country comparisons, these data are supplemented with country-level information on economic, policy, and cultural contexts from other publicly available data sources, such as the UN, ILO, and the World Bank. A full description of the resulting dataset is included in the appendix of this chapter (table 3.5).

3.3.2 Operationalization

The dependent variable is a binary indicator for *employment status*, counting all women in paid employment for any number of hours as working, while women performing no paid labor are counted as non-employed[1]. Following the ILO (2000) definition of work, women are considered to be employed if they work for pay in the formal or informal sector, in dependent or self-employment, or work in family businesses whose production is meant to generate income, but not if they work in subsistence or reproductive labor. There are two main independent variables: *motherhood status* and *social position*. For the former, I construct a binary variable that counts women as mothers when they report having at least one own-child under the age of 15 in the household. Social position is operationalized as a three-point scale for low, medium, and high social position and is measured as women's relative educational attainment. IPUMS International contains harmonized data on the educational attainment of women and their spouse in thirteen categories running from no schooling to having completed university. Given the inclusion of both high- and middle-income countries in this study, sizeable groups of women in the sample dropped out of school before the end of primary education in some countries (e.g. Zambia), whereas tertiary education is becoming the norm in others (e.g. USA). As such, educational achievement cannot be taken at face value. After all, university educated women in Zambia should be considered a much more selective group than those in the USA, with the opposite applying to those without formal schooling. Therefore, I construct dummy variables for low, medium, and high social position

based on the within-country distribution across the educational levels, each containing about a third of the women in a country. The coding is harmonized within the three country income groupings in order to facilitate comparability and allow for compositional differences in the social position distribution, as described in the appendix to this chapter (table 3.5).

A number of individual-level control variables are included. To avoid misclassifying some women who may have married into more or less privileged families than their own education would suggest, I construct two dummies for women whose partners are significantly higher or lower educated than themselves. I classify the spouses in the same three-category social position variable and code partners as higher or lower positioned if they score one category above or below their wife. Further control variables include age (mean centered) and age squared, a dummy variable for being unmarried (ref. married), as well for having a spouse who is unemployed (ref is employed spouse), and for more than one mother living in the household (ref. one mother). A dummy variable for living in a rural area (ref. urban) is included in the analyses of all countries, except Spain, the USA, Uruguay, Zambia, and Puerto Rico.

On the country level, I introduce indicators to measure economic, policy, and cultural contexts. For economic contexts, I control for poverty rates and per capita GDP. For poverty rates, I use the UN Multidimensional Poverty Index for the middle-income countries and OECD estimations of the share of the population earning less than half of the median income for the OECD member countries. Per capita GDP is obtained from the World Bank. For policy contexts, I control for the share of employed women that works part-time, the length of paid maternity leave, and a set of indicators for early childhood care and education. Data on part-time employment is sparse outside of the European and Anglo-Saxon countries and therefore I use data from the World Economic Forum's Global Gender Gap Report, which reports on part-time employment for the first time in 2014. For maternity leave, I use statutory weeks of paid maternity leave on the national level in 2009 from the ILO TRAVAIL database. I measure early childhood care and education through two participatory variables: the enrollment of children under three and enrollment in pre-primary education. To address concerns of endogeneity, I also introduce two quality measures: public spending on pre-primary education as a share of GDP and the number of pupils per teacher in pre-primary education. Data are taken from the UNESCO Institute for Statistics and Eurostat for 2009. For cultural contexts, I include measures on gender equality and attitudes towards working mothers and housewives. Gender equality in a country is measured using country performance on four global gender equality indices, which measure gender equality in human development (GDI), society (GII), economy (GEM), and institutions (SIGI). The GII and SIGI are reversed and all variables are standardized to form a scale (Cronbach's alpha .891), where higher values indicate more equal outcomes. Comparable data on attitudes are sparser and were only available for 17 countries. The *European* and *World Values Surveys*

contain two items asking respondents to rank their agreement with the statements that "being a housewife is just as fulfilling as working for pay" and "pre-school children suffer when the mother works" on a four-point scale (0 – strongly agree; 3 – strongly disagree). I construct a measure containing the mean response for each country on this item, where higher values constitute more supportive attitudes towards maternal employment. Since the two items do not form a reliable scale, I test them separately.

3.3.3 Estimation strategy

In this chapter, I aim to test (1) whether maternal employment levels and motherhood effects in employment vary across countries and social positions, (2) how economic, policy, and cultural contexts are associated with cross-country variation, and (3) whether the effects of economic, policy, and cultural contexts differ by social position. To address recent concerns that hierarchical linear models do not yield accurate estimations in comparisons that include few countries, I employ a two–step multilevel design (c.f. Heisig, Schaeffer, & Giesecke, 2017; Stegmüller, 2013). I estimate the individual level effects separately for each country and use those results to estimate country-level effects. While this approach reduces uncertainty around the accuracy of macro-level effects, I stress that it does not change the fact that the data are cross-sectional in nature; results should thus be interpreted as descriptive rather than causal.

To answer the first research question, I firstly calculate the share of mothers that is in paid employment as a percentage of all mothers. I use the share of mothers in paid work to calculate maternal employment *levels*. I measure the difference in maternal employment levels by social position by subtracting the share of all medium social position mothers that is employed from the share of low and high social position mothers respectively. I then run the step-one logistic regression analyses for each of the 31 countries separately. These regressions measure the effect of being a mother on women's probability of being employed, whilst controlling for the abovementioned individual-level characteristics. Addressing concerns regarding the comparability of logistic coefficients, I use the average marginal effect (AME) of motherhood to calculate the size of the motherhood *effects* (Breen, Holm, & Karlson, 2014; Breen, Karlson, & Holm, 2018). I use the contrast operator of Stata's margins command (contrast of predictive margins, CPM) to estimate the differences in the average marginal effect of motherhood between women in low and medium social positions, and between the high and medium social positions.[2]

In the second-step models, I use the estimated *levels* and *effects* from the first-step analyses as dependent variables in a set of OLS regressions to measure the country-level associations. To estimate the heterogeneity of the country effects across social positions, I re-run the second-step analyses using the social position-specific *levels* and *effects*. Following

Bol et al. (2015) and Lewis and Linzer (2005), I apply the edvreg package for Stata, which takes account of any uncertainty in the 31 country regressions by using the standard errors around the first-step estimates as weights in the second-step models. Since the second-step analyses still contain limited statistical power, effectively estimating relations based on 31 countries at one point in time (or 17 in the models including the variable for attitudes), I show the regression results in three tables, accompanied by six figures displaying both the bivariate and multivariate associations to include individual country positions in the interpretation of the results. As a robustness check, I check for influential outliers using Cook's D and re-run analyses without the outliers; any discrepancies are reported in the results section.

3.4 Results

3.4.1 Maternal employment: levels versus effects

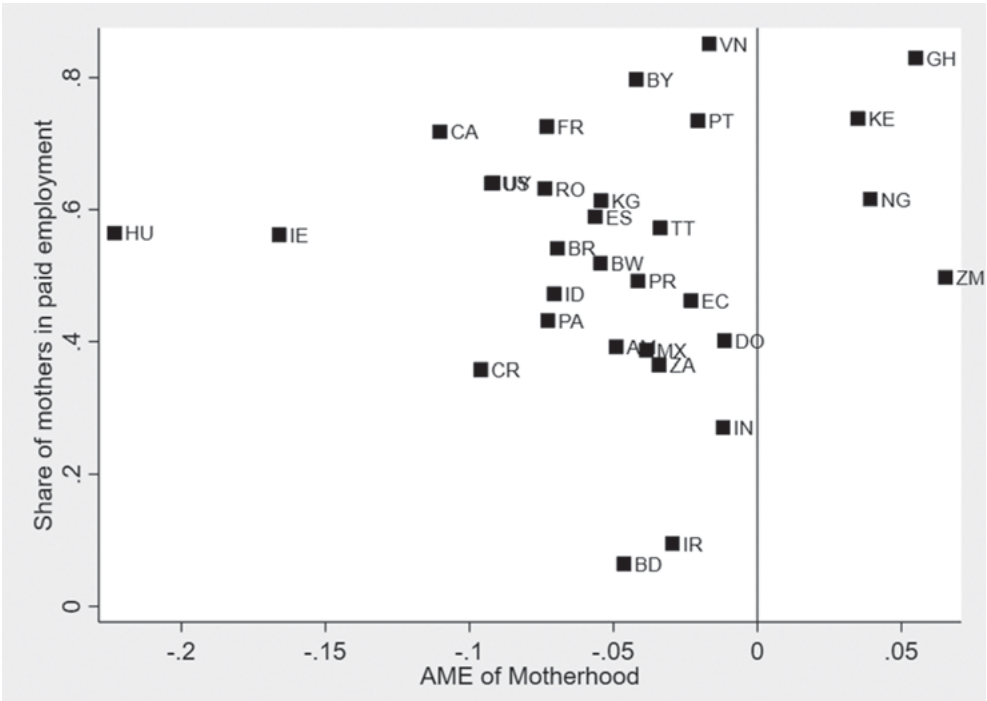
The first research objective of this chapter was to establish whether maternal employment levels and motherhood effects vary across countries and social positions. Estimated maternal employment levels and motherhood effects by country and social position are included in the appendices of this chapter (table 3.6 and 3.7), but shown here in two figures to highlight the differences between *levels* and *effects*. In Figure 3.1, I show the share of mothers that is engaged in paid employment (y-axis), measuring maternal employment *levels*. On the x-axis, I show the average marginal effect (AME) of motherhood from the first-step logistic regression analyses, which measures the size of the motherhood *effect* and can be both a motherhood premium (positive values; right of the zero-line) or a penalty (negative values; left of the zero-line).

The results indicate that both *levels* and *effects* vary across countries. Bangladesh (BD) displays the lowest level of maternal employment at around 6% and Vietnam (VN) the highest at 85% (y-axis). The estimated effect of motherhood (x-axis) varies from a reduction of 22 percentage points in Hungary (-.223, sig. p<.001; HU) to a 6.5 percentage point increase in Zambia (.065, sig. p<.001; ZM). While this figure should not be interpreted in any causal way, it serves to illustrate that it would be imprudent to equate maternal employment *levels* with motherhood *effects*. For example, at the same level of employment, motherhood is associated with a large penalty in Hungary, small penalties in Trinidad and Tobago, and a premium in Nigeria. *Levels* and *effects* are, in fact, only weakly correlated at .325 (not shown).

To ascertain whether the effect of social position differs between countries too, figure 3.2 plots the effects of being in a high (y-axes) and low (x-axes) social position compared to the medium social position group. The figure shows the effect of social position on the share of mothers in paid employment (in black; left and bottom axes) and on the motherhood effect (in red; right and top axes). The black axes and country positions show that in the large

majority of countries (23 out of 31), mothers in high social positions are more likely, and mothers in low social positions less likely, to be in paid employment than mothers in medium social positions. These countries are found in the upper left corner of the graph - above the zero-line on the black y-axis and below the zero-line on the black x-axis. Eight lower-middle-income and one upper-middle-income countries show different patterns: mothers in high and medium social positions are less likely to be employed than their peers in low social positions in Ghana (GH), India (IN), and Zambia (ZM) (lower right corner). Mothers in medium social positions are less likely to work than either high or low social position mothers in Indonesia (ID), Botswana (BW), and Bangladesh (BD) (upper right corner); Mothers in medium social positions are more likely to work than both high and low social position mothers in Nigeria (NG) and Vietnam (VN) (lower left corner).

Figure 3.1 Share of mothers in paid employed and average marginal effect of motherhood on the probability that a woman is in paid employment

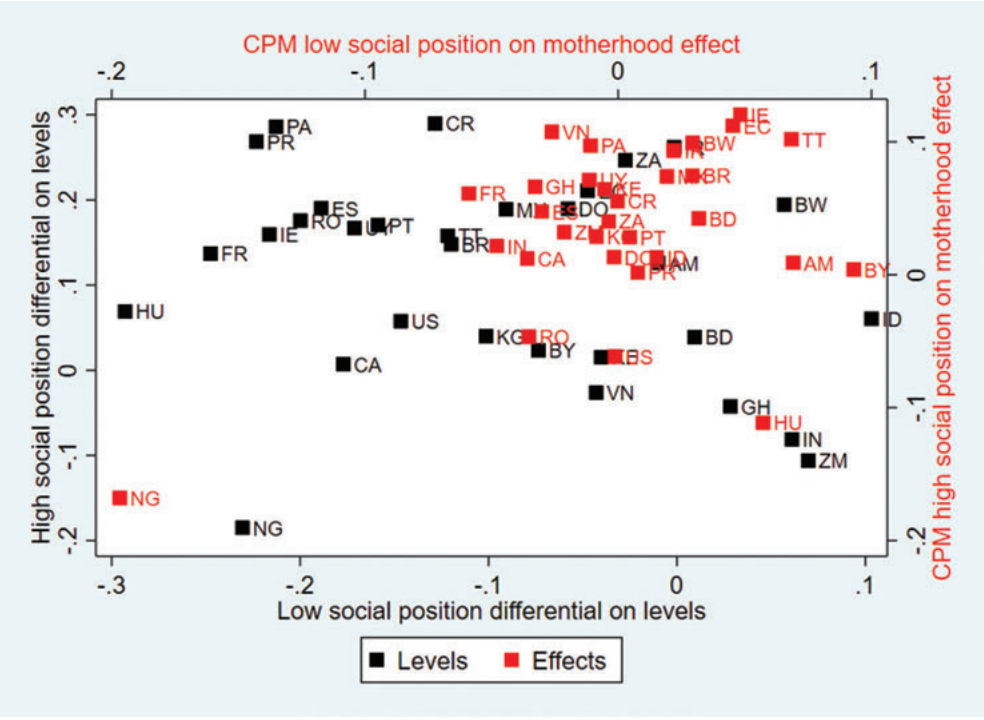


Note: Y-axis showing employed mothers as a share of all mothers; x-axis average marginal effect of motherhood on the probability of being employed.

The relation between the size of the motherhood effect and social position (Figure 3.2, red) shows a more mixed country pattern. Only four countries show more negative motherhood

effects for women in high compared to medium social positions, as displayed by the red country positions below the zero-line on the red y-axis (Hungary *(HU)*, Nigeria *(NG)*, Romania *(RO)*, USA *(US)*). The remaining 27 countries show either more negative effects for women in low social positions (left of the zero-line on the red x-axis), for the medium social position group (right of the zero-line on the red x-axis), or no significant differences between medium and low social position women. Of the 23 countries where low social position mothers were the least likely to be employed and high social position mothers the most likely (upper left corner, in black), only six replicate this pattern with respect to the size of motherhood effects (Canada *(CA)*, France *(FR)*, Kenya *(KE)*, Panama *(PA)*, Spain *(ES)*, Uruguay *(UY)*). What is more, the size of the social position effect on motherhood effects (Figure 3.2, red) does not reveal any clear relation to countries' level of economic development. Thus, maternal employment levels and motherhood effects do vary across countries, as does the size and direction of the social position effect. Studying motherhood *effects* reveals a separate effect from the studies focusing on *levels* of employment.

Figure 3.2 Effect of being in a low and high social position on the share of mothers that are employed and on the average marginal effect of motherhood by country



Note: Effect of social position on levels is displayed in black. Effect of social position on the motherhood effect is displayed in red. Y-axes show the effect of being in a high social position; x-axes show the effect of being in a low social position.

3.4.2 Effects of economic, policy, and cultural contexts

The second aim of this chapter was to study to what extent economic, policy, and cultural contexts can explain cross-country variation in maternal employment levels and motherhood effects. For these analyses, I regress the estimated *levels* of maternal employment and the *effect* of motherhood on the country-level characteristics. Table 3.2 shows the effects of country contexts on the share of mothers in paid employment (series 1 and 2) and on the *effect* of motherhood (series 3 and 4). The analyses firstly show the bivariate association between the country-level indicators and the *levels* and *effects* (series 1 and 3), followed by models including controls for per capita GDP (series 2 and 4). Each column shows a series of regressions, implying each cell represents a separate regression model. For example, the positive coefficient of childcare enrollment ages 0-2 in series 1 (0.008, sig. p<.05) implies that childcare has a positive effect on maternal employment levels in a model that regresses maternal employment levels on childcare enrollment rates without any further control variables; the coefficient in series 2 (0.009, sig. p<.05) means this association, controlled for per capita GDP, is also positive.

Table 3.2 Effects of country contexts on the share of mothers in paid employment and the motherhood effect on employment

		Employment Levels		Motherhood Effects	
	N	Bivariate (Series 1)	Per capita GDP (Series 2)	Bivariate (Series 3)	Per capita GDP (Series 4)
Per capita GDP	31	0.052		-0.027***	
GDP squared	31	0.009		0.002	
Poverty levels	31	-0.047	-0.070	0.000	0.006
Poverty Squared	31	-0.026	-0.025	0.022*	0.009
GINI	31	0.004	0.006	0.002†	0.002*
Paid maternity leave (weeks)	31	-0.005†	-0.004	0.001	0.000
Maternity leave squared	31	0.000*	0.000	0.000	0.000
Part time	20	-0.001	-0.002	0.000	0.000
Childcare enrollment 0-2	31	0.008*	0.009*	-0.001†	0.000
Pre-primary enrollment	31	0.005***	0.005***	-0.001	0.000
Pupil-teacher ratio	27	-0.002	-0.003	0.003*	0.002*
Expenditure on pre-primary	29	0.482*	0.473**	-0.043	-0.009
Gender equality in society	31	0.143**	0.185***	-0.035***	-0.011
Support for working mothers	17	0.483***	0.579***	0.004	0.092
Stigma against housewives	18	-0.014	-0.021	0.097†	0.074

**** p<0.001, ** p<0.01, * p<0.05, † p<.1*

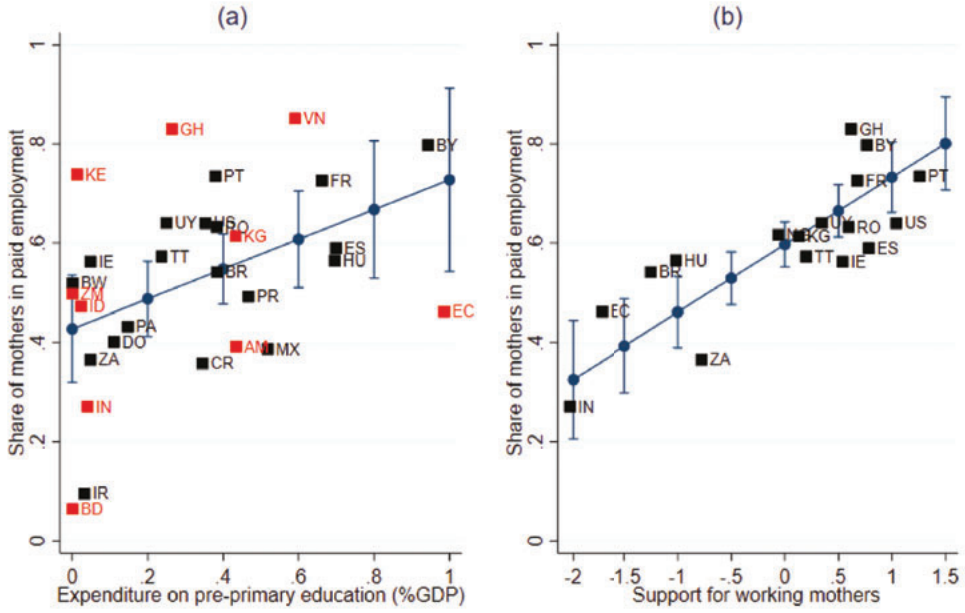
Note: Each cell represents a separate regression model

I start by examining the relation between maternal employment *levels* and the country contexts. The first series in table 3.2 shows the bivariate regression models of maternal employment levels on each country-level indicator; the second series replicates these models with two control variables for per capita GDP and per capita GDP squared. The results show a surprising absence of association between economic contexts and maternal employment *levels*. Neither per capita GDP, poverty rates, nor economic inequality (GINI) yield significant results. The working time and leave indicators, paid maternity leave and part-time employment, do not have significant results after controlling for per capita GDP (table 3.2, series 2).

Higher enrollment of children in early childhood care and education facilities, as well as higher expenditure on pre-primary education, are associated with maternal employment levels. I find a positive effect of higher enrollment in childcare (.009, sig. p<.05) and pre-primary education (.005, sig. p<.001), indicating that a percentage point increase in enrollment is associated with one percentage point and half a percentage point higher share of mothers in paid employment respectively. The effect of expenditure on pre-primary education (.473, sig. p<.01) indicates that the estimated maternal employment level is about 47 percentage points higher in countries that spend most on pre-primary education (just under 1% of GDP) like Ecuador and Belarus compared to countries that spend least (less than 0.02% of GDP) like Indonesia and Bangladesh. Figure 3.3(a) plots the marginal effect of expenditure on pre-primary education on maternal employment levels when controlling for per capita GDP (as displayed by the regression line) and the individual country positions (as displayed by the scatter plot). The figure shows, for instance, that the estimated maternal employment levels in countries spending 0.4% of GDP on pre-primary education is 55% (regression line at .4 on the x-axis and .55 on the y-axis) and that the actual share of mothers in employment at countries reporting that level of spending is higher that estimated in Portugal (PT) and lower in Armenia (AM). Furthermore, the scatterplot shows that expenditure on pre-primary education is least predictive of actual maternal employment levels in lower-middle-income countries, which are displayed in red, and at no or negligible levels of expenditure (at the lowest values on the x-axis).

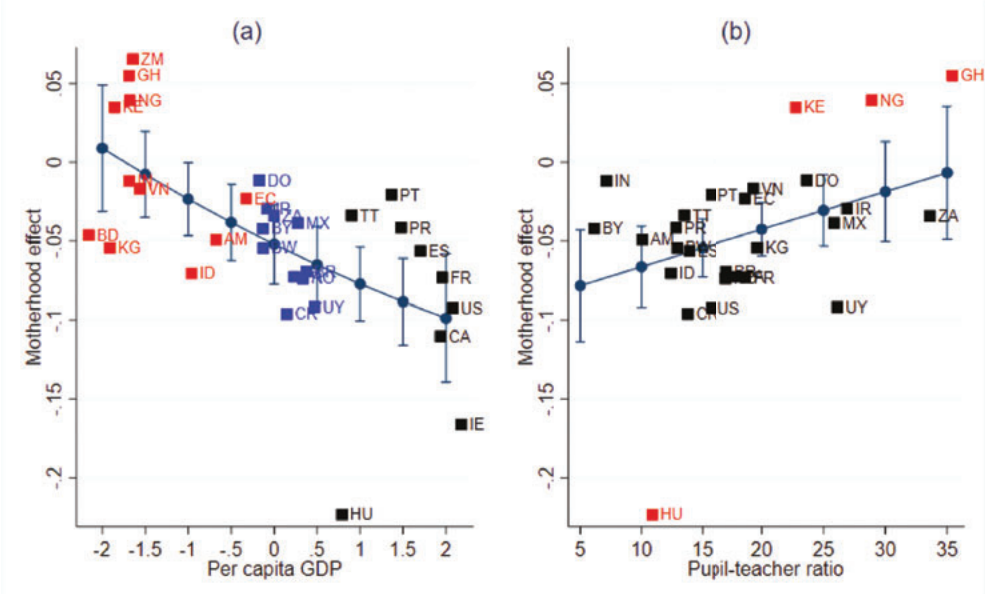
With regard to cultural contexts, higher scores on the equality scale (.185, sig, p.<.001) and more supportive attitudes towards working mothers (.579, sig. p<.001) are also associated with higher shares of mothers in paid employment, confirming findings across the development literature (c.f. Goldin, 1995; Haghihat, 2005; Iverson & Rosenbluth, 2008). Figure 3.3(b) shows there are no notable outliers in this model. Models testing these results when controlling for the economic, policy, and cultural indicators simultaneously for the 31-country and the 17-country samples are included in the appendices of this chapter (tables 3.8-3.10) as a robustness check and do not change the interpretation.

Figure 3.3 Marginal effects of country contexts on the share of mothers in paid employment



Note: Country positions represent the binary association between the country-level variables and the share of mothers in paid employment. Marginal effects are based on table 3.2, series 2. The 95 percent confidence intervals are presented.

Figue 3.4 Marginal effects of country contexts on the motherhood effect



Note: Country positions represent the binary association between the contextual variables and the motherhood effect. Marginal effects are based on series 4, table 3.2. The 95 percent confidence intervals are presented.

When studying the *effect* of motherhood on women's probability of being employed (table 3.2, series 3 and 4), the association between *per capita GDP* and the motherhood *effect* is negative, suggesting motherhood penalties are larger in countries with higher per capita GDP. Figure 3.4(a) shows that motherhood is estimated to have a negative effect on women's probability of being employed starting at a per capita GDP of half a standard deviation below the sample mean (e.g. Ecuador *(EC)*, Armenia *(AM*)), where the confidence intervals around the estimated effect no longer cross the zero-line on the y-axis. A negative effect of motherhood is estimated to exist in all high- (in black) and upper-middle-income (in blue) countries, whose point estimates fall below the zero line on the y-axis. The motherhood effect is negative in about two thirds of the lower-middle-income countries (in red). In the bivariate regressions (table 3.2, series 3), the association of the motherhood effect with both poverty (.022, sig. $p<.05$) and economic inequality (.0002, sig. $p<.1$) is positive, suggesting that motherhood penalties on employment are smaller in countries where the necessity for two incomes is larger. When controlling for per capita GDP (series 4), this relation is replicated for economic inequality but not poverty.

Regarding the work-family policies, no indicators of the length of working time and leaves are significantly related to the motherhood effect, whether bivariately or controlling for per capita GDP. Of the childcare indicators, only the pupil-teacher ratio (i.e. the number of pupils per teacher in pre-primary education) is associated with the motherhood effect after controlling for per capita GDP. The results suggest, rather counterintuitively, that the motherhood penalty is smaller in countries with more pupils per teacher (.002, sig. $p<.05$). Although I cannot test this, a possible explanation of this finding would be that class sizes in pre-primary education are larger in countries where pre-primary education has been more integrated into the regular school curriculum. The relation was also tested without four outliers, in red in Figure 3.4(b), but this did not change the significance or direction of the effect. As expected, gender equality is not associated with the motherhood *effect* after controlling for per capita GDP, but neither are attitudes towards working mothers and housewives.

In conclusion, findings indicate that overall maternal employment levels are higher in countries with more enrollment and investment in early childhood care and education, as well as in countries with more gender equality and more favorable attitudes towards working mothers. In line with findings by Mandel (2011), gender equality was not associated with motherhood *effects.* While there is no consistent relation between countries' level of economic development and maternal employment *levels*, the effects of *per capita GDP* show that mothers in countries with higher per capita GDP are more likely to experience negative motherhood effects. The hypothesized effects of policy and cultural contexts on

motherhood *effects* were not confirmed in the models that do not take account of women's social position.

3.4.3 Heterogeneous effects of economic, policy, and cultural contexts

The final research question of this chapter was whether the effects of country contexts on maternal employment *levels* and motherhood *effects* differ by women's social position. In order to answer this question, this section studies how the country-level variables are related to the effect of being in a low or high compared to in a medium social position on maternal employment levels (table 3.3) and motherhood effects (table 3.4). As in the previous section, each cell in these tables displays a separate regression of the indicator on the social position effect. Selected heterogeneous effects are shown in figures 3.5 and 3.6.

As table 3.3 shows, findings from the previous section are generally replicated. More favorable attitudes towards working mothers and enrollment in early childhood care and education are positively associated with the share of all mothers in paid employment, as indicated by the positive association with the main effect (series a, d) and the non-significant associations with the size of the social position dummies (series b-c, e-f). There is limited evidence of heterogeneity of the effects of social contexts on maternal employment *levels*. In line with expectations, the effect of gender equality is less positive for mothers in low social positions, as indicated by the negative effect of gender equality on the effect of being in a low social position (-.032, sig. $p<.05$; series e). While no significant effects of economic contexts were found in the previous section, findings indicate there is a relation with the effect of being in a low and high compared to medium social position. Per capita GDP is negatively related with the effect of being in a low social position (-.054, sig. $p<.001$; series e), indicating mothers in low social positions are less likely to work than their peers in medium social positions in countries with higher per capita GDP. The association of per capita GDP with being in the high social position is inversely U-shaped (.040, sig. $p<.01$; -.031, sig. $p<.01$; series f). As Figure 3.5(b) shows, this implies the mothers in high social positions are more likely to be employed than their medium social position peers at moderate and high levels of per capita GDP (at and above the mean value of zero on the x-axis).

The findings indicate a similar relation between the effect of being in a high social position and poverty rates (series c, f), even net of GDP, but these effects are only marginally significant.

Table 3.3 Effects of country contexts on the share of mothers in paid employment and on the effect of social position on maternal employment levels

	Bivariate			Controlled for GDP		
	Share of mothers in employment	Low social position	High social position	Share of mothers in employment	Low social position	High social position
	(series a)	(series b)	(series c)	(series d)	(series e)	(series f)
Per capita GDP	0.063	-0.054***	0.040**	0.063	-0.054***	0.040**
GDP squared	0.027	-0.011	-0.031**	0.027	-0.011	-0.031**
Poverty levels	-0.078	-0.008	0.032	-0.112	0.002	0.046†
Poverty Squared	0.008	0.026	-0.064*	0.015	-0.004	-0.039
GINI	0.004	0.000	0.004*	0.007	0.001	0.001
Paid maternity leave (weeks)	-0.007*	0.001	0.002	-0.005	-0.002**	0.002
Maternity leave squared	0.000*	0.000	0.000	0.000	0.000†	0.000
Part time	-0.001	0.001	-0.001	-0.001	-0.002	0.002
Childcare enrollment 0-2	0.010*	-0.005***	0.002	0.012*	-0.001	0.000
Pre-primary enrollment	0.005***	-0.002**	0.001†	0.006**	-0.001	0.000
Pupil-teacher ratio	-0.007	0.003	0.000	-0.007	0.001	0.003
Investment in pre-primary	0.621**	-0.177*	0.019	0.620**	-0.108*	-0.105†
Gender equality (society)	0.170**	-0.064***	0.050	0.209***	-0.032*	-0.005
Support for working mothers	0.522***	-0.133	0.066	0.632***	-0.041	-0.039
Stigma against housewives	-0.056	0.098	0.038	-0.058	0.037	0.078

**** p<0.001, ** p<0.01, * p<0.05, † p<.1*
Note: Each cell represents a separate regression model

Regarding the effects of country-contexts on the motherhood *effect*, the models show more heterogeneity by social position (table 3.4). While the results of per capita GDP is replicated across social positions, suggesting motherhood penalties are larger at higher per capita GDP for all social position groups, this is not so for poverty and economic inequality. In line with findings from England and colleagues (2004), higher poverty rates (-.031, sig. p<.01; series e) and more economic inequality (-.002, sig. p<.05) are associated with more negative effects of being in a low social position.

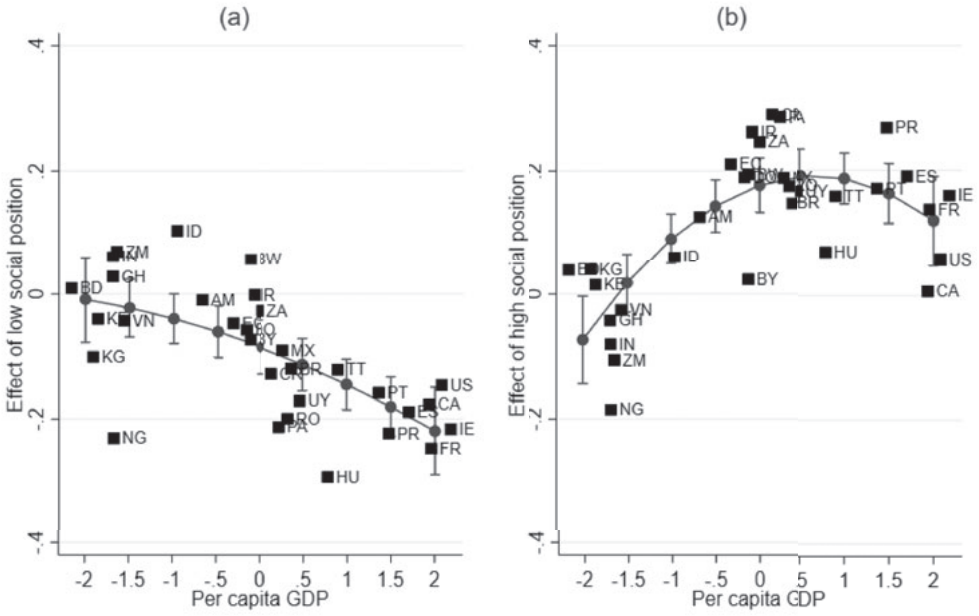
Table 3.4 Effects of country contexts on the motherhood effect on employment by social position

	Bivariate			Controlled for GDP		
	Motherhood effect	Low social position	High social position	Motherhood effect	Low social position	High social position
	(series a)	(series b)	(series c)	(series d)	(series e)	(series f)
Per capita GDP	-0.021**	0.007	0.001	-0.021**	0.007	0.001
GDP squared	-0.002	-0.010	-0.004	-0.002	-0.010	-0.004
Poverty levels	0.003	-0.033*	-0.006	0.009	-0.031**	-0.004
Poverty Squared	0.014	0.009	-0.006	0.005	0.014	-0.011
GINI	0.002*	-0.001	0.002*	0.002*	-0.002*	0.002
Paid maternity leave (weeks)	0.001	0.000	0.000	0.000	-0.001	0.000
Maternity leave squared	0.000	0.000	0.000	0.000	0.000	0.000
Part time	-0.001	0.000	0.003	0.000	-0.001	0.005*
Childcare enrollment 0-2	-0.001	0.000	0.000	0.001	-0.001	0.001
Pre-primary enrollment	0.000	0.000	0.000	0.000	0.000	0.000
Pupil-teacher ratio	0.003*	-0.003	0.001	0.002**	-0.003*	0.001
Investment in pre-primary	-0.028	0.026	-0.033	-0.006	0.019	-0.031
Gender equality (society)	-0.028**	0.020	0.009	-0.009	0.028	0.016
Support for working mothers	0.009	-0.014	-0.015	0.094	-0.031	-0.052
Stigma against housewives	0.091*	-0.051*	0.057	0.073	-0.053**	0.046

**** p<0.001, ** p<0.01, * p<0.05, ⁺ p<.1*
Note: Each cell represents a separate regression model

Models taking mothers' social position into account furthermore indicate that a higher share of part-time employment is associated with lower penalties for the high social position group (.005, sig. p<.05; series f) and not associated with motherhood effects for the low and medium social position groups. The positive association between the pupil-teacher ratio in pre-primary education and the motherhood effect is replicated for the medium and high social position groups, but associated with larger relative penalties for the low social position group (-.003, sig. p<.05; series e). The marginally significant effect of the stigmatization of housewives in the previous section is replicated for the medium and high social position groups in the bivariate regressions (series a, c); similar but non-significant effects are found when controlling for per capita GDP (series d,f). Series b and d, however, indicate that in countries where being a housewife is considered less fulfilling, the motherhood effect is also more negative for women in low social positions (-.053, sig. p<.01; series e).

Figure 3.5 Marginal effects of per capita GDP on the effect of being in a low and high social position on maternal employment levels

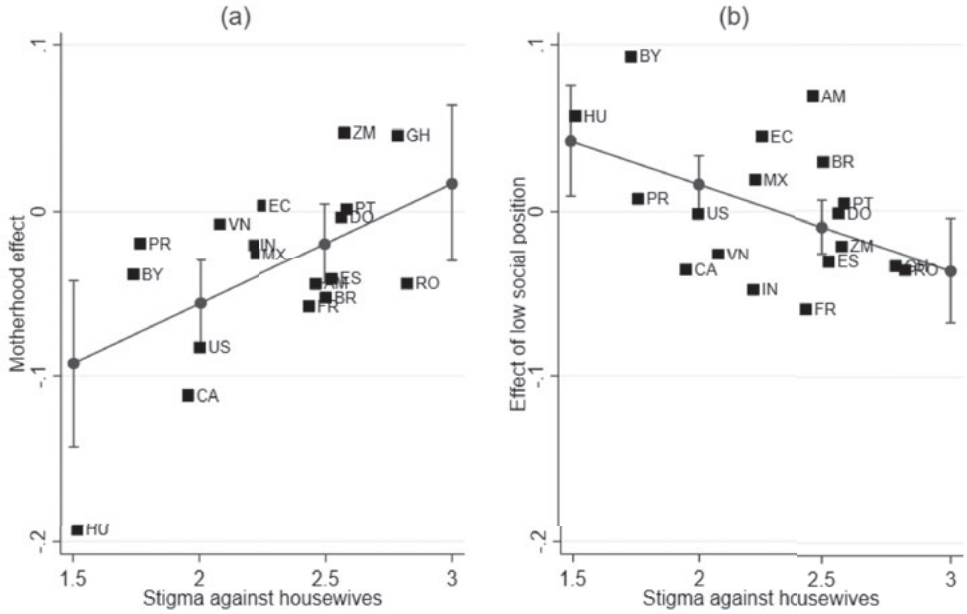


Note: Country positions represent the binary association between per capita GDP and the social position effect. Marginal effects are based on series e and f, table 3.3. The 95 percent confidence intervals are presented.

3.5 Discussion and Conclusions

In this paper, I set out to study (1) whether maternal employment levels and motherhood effects vary across countries and social positions, (2) to what extent economic, policy, and cultural contexts can explain cross-country variation in *levels* and *effects*, and (3) whether the effects of economic, policy, and cultural contexts differ by women's social position. Using a two-step, multilevel approach on a diverse, large sample dataset, I find that both *levels* and *effects* do differ across countries and social position. While mothers are less likely to be in paid employment the lower their social position in 23 out of 31 countries, they experience the largest motherhood penalties in only seven. Notably, women in medium social positions pay the largest motherhood penalties on employment in the majority (20) of the countries. Neglecting either *levels* or *effects* in comparative analyses can thus lead to very different results.

Figure 3.6 Marginal effects of stigma against housewives on the motherhood effect by social position



Note: Country positions represent the binary association between attitudes towards housewives and the motherhood effect/the effect of being in a low social position. Marginal effects are based on series d and e, table 3.4. The 95 percent confidence intervals are presented.

Furthermore, I have argued in this chapter that country contexts explain different mechanisms depending on whether mothers' paid work is operationalized as the *level* of maternal employment or motherhood *effects.* I have posited that economic, policy, and cultural contexts can explain the opportunities and necessities to work if we study maternal employment *levels* across countries. I found that mothers are more likely to be employed in countries with higher childcare enrollment, more gender equality, and more supportive attitudes towards working mothers. On the other hand, I suggest country variation in motherhood *effects* is linked to time and role incompatibilities associated with combining paid work and unpaid care tasks. Here, I found that motherhood penalties were smaller at higher levels of income inequality and larger class sizes in pre-primary education, whereas they were larger in higher levels of economic development. Notably, the effects of cultural contexts were stronger for maternal employment *levels* than for motherhood *effects*. This confirms theories that emancipation affects women without dependent children more so than mothers, but it rejects the idea that attitudes towards working mothers specifically affect mothers (Mandel, 2011; Pfau-Effinger, 2004).

Finally, this chapter explored the moderating effect of social position on the association between country contexts and mothers' paid employment, arguing that mothers' behavior is more sensitive to opportunities to work and role incompatibilities the higher their social position and to necessities to work and time incompatibilities the lower their social position. Results show that gender equality is more strongly associated with the share of medium and high social position mothers in paid labor. As hypothesized, the share of mothers in low social positions was also relatively smaller at higher levels of economic development, whereas the share of mothers in high social positions was larger in those same countries.

Analyses of the effects of country contexts on the motherhood *effect* showed heterogeneous effects of economic, policy, and cultural contexts. Higher poverty rates and economic inequality were associated with relatively larger motherhood penalties for women in low social positions, confirming findings by England and colleagues (2004). Childcare had strong positive effects on the medium and high social positions groups, but not on their low social position peers. More favorable attitudes towards working mothers were non-significantly related to smaller motherhood penalties for women in medium social positions, whereas negative attitudes towards housewives were associated with smaller motherhood penalties for the medium and high social position groups.

The limitations of this study, including the restricted number of individual-level variables, the sometimes sparse availability of global policy indicators and the cross-sectional nature of the data, warrant a cautious interpretation. These results should be read as descriptive. What this study has attempted to do, however, is to show that taking into account both relative and absolute maternal employment levels and women's social position in comparative research helps us better understand how economic, policy, and cultural contexts affect mothers' paid work. Secondly, the study suggests that future research into motherhood effects for women in low social positions should focus on economic contexts and time incompatibilities, whereas scholars interested in mothers in medium or high social positions would be likely to find better answers studying work-family policies and cultural contexts. Finally, I show that economic, policy, and cultural contexts are able to explain cross-country differences in high- and middle-income countries together when the share of mothers in paid employment, the motherhood effect on employment, and social position are considered simultaneously. Future research, I hope, will endeavor to collect longitudinal data including actors' take-up of policies as well as attitudes and family disposable income in middle-income countries and construct indicators that are coherent across levels of economic development, so as to be able to answer these questions with more causal certainty.

End notes

1 IPUMS harmonizes the data on women's employment status from the 31 national surveys. While this can be no absolute guarantee that employment definitions are fully identical across countries, I argue that this is the best harmonization possible within the limitations of the dataset and follow the IPUMS definition.

2 Linear probability models were tested and yielded the same results

3.6 Appendices

Table 3.5 Description of dataset

Variable description	Measurement	Source
Employment status	0 = not in paid employment; 1 = in paid employment	IPUMS International
Motherhood status	0 = no child in the household; 1 = one or more children in the household	IPUMS International
Social position	For lower middle income countries: 0 = low (less than primary), 1 = middle (primary or lower secondary completed), 2 = high (upper secondary education or more)	
	For upper middle income countries: 0 =low (primary or less), 1 = middle (secondary), 2 = high (some tertiary or university)	
	For high income countries: 0 = low (secondary or less), 1 = middle (some tertiary) 2 = high (university completed)	IPUMS International, own calculation
Age and age squared	age, mean centered	IPUMS International
Single	0 = married; 1 = not married	IPUMS International
Living in rural area	0 = urban area; 1= rural area	IPUMS International
Multiple mothers in the household	0 = one or no mother in the household; 1 = more than one mother in the household	IPUMS International
Employment status spouse	0 = spouse works (if applicable); 1 = spouse not in employment	IPUMS International
Spouse in higher social position	0 = spouse in same social position (if applicable); 1 = spouse in higher social position	IPUMS International, own calculation
Spouse in lower social position	0 = spouse in same social position (if applicable); 1 = spouse in lower social position	IPUMS International, own calculation
Poverty rate and squared term	Country's poverty rate in 2009 measured as in Multidimensional Poverty index or 50% of median income for OECD countries (Ø.18, σ.17)	UN MPI for non-OECD, OECD Stats; Romania from EU SILC; Botswana, Costa Rica, Panama, Uruguay by World Bank national poverty line info; Iran HPI 2008
Gender equality index score	Composite index of countries' gender equality scores in the UN GDI and GII measures, WEF GEM and OECD SIGI. Standardized Ø0, σ.1)	UN Statistics, World Economic Forum, OECD Stats
Cultural support for working mothers	Mean response to statement "when a mother works for pay, children suffer" from 0 (agree) to 3 (disagree) (Ø2.6, σ.25)	European values survey wave 4; world values survey wave 6

Table 3.5 Continued

Variable description	Measurement	Source
Work balance	Standardized scale of maximum working hours including overtime, weeks of statutory paid maternity leave, and statutory paid annual leave	ILO TRAVAIL
Childcare enrollment	Standardized scale of enrollment in 0-3 childcare institutions and pre-primary education	UNESCO UIS Statistics
Per capita GDP	Per capita GDP in 2009 (current US$)	World Bank

Table 3.6 Share of mothers in paid non-agricultural employment by country and social position

	Full sample	Low social position sample	Medium social position sample	High social position sample
Bangladesh	6.42%	5.96%	5.01%	8.90%
Armenia	39.21%	35.34%	36.34%	48.94%
Botswana	51.87%	49.36%	43.67%	63.13%
Brazil	54.14%	45.55%	57.55%	72.35%
Belarus	79.73%	74.05%	81.40%	83.76%
Canada	71.80%	60.66%	78.37%	79.08%
Costa Rica	35.80%	23.59%	36.42%	65.40%
Dominican Republic	40.15%	31.93%	37.71%	56.69%
Ecuador	46.21%	38.97%	43.71%	64.80%
France	72.59%	47.48%	72.23%	85.91%
Ghana	83.00%	84.87%	82.03%	77.78%
Hungary	56.45%	30.69%	59.98%	66.87%
India	27.08%	31.71%	25.60%	17.50%
Indonesia	47.24%	50.76%	40.44%	46.50%
Iran	9.53%	4.41%	4.57%	30.76%
Ireland	56.21%	33.11%	54.75%	70.71%
Kenya	73.80%	70.58%	74.59%	76.12%
Kyrgyz Republic	61.37%	51.16%	61.30%	65.28%
Mexico	38.72%	27.48%	36.56%	55.46%
Nigeria	61.62%	54.98%	78.04%	59.55%
Panama	43.21%	23.00%	44.28%	72.88%
Portugal	73.47%	58.36%	74.22%	91.27%
Puerto Rico	49.17%	27.14%	49.46%	76.31%
Romania	63.21%	45.99%	65.98%	83.55%
Vietnam	85.15%	83.54%	87.83%	85.23%
South Africa	36.53%	23.90%	26.64%	51.30%
Spain	58.94%	41.62%	60.50%	79.52%
Trinidad and Tobago	57.24%	44.07%	56.24%	72.05%
United States	63.99%	52.99%	67.65%	73.41%
Uruguay	64.04%	48.56%	65.68%	82.41%
Zambia	49.72%	57.18%	50.21%	39.59%

Table 3.7 Motherhood effect on employment by country and social position

	Full sample	Main effect (AME)	Low social position effect (CPM)	High social position effect (CPM)
Bangladesh	-0.046***	-0.046***	0.032***	0.042***
Armenia	-0.049***	-0.044***	0.069***	0.009
Botswana	-0.055***	-0.043***	0.029**	0.099***
Brazil	-0.070***	-0.053***	0.029***	0.075***
Belarus	-0.042***	-0.039***	0.093***	0.004
Canada	-0.110***	-0.111***	-0.036***	0.012
Costa Rica	-0.096***	-0.065***	0.000	0.055***
Dominican Republic	-0.011**	-0.003	-0.002	0.013
Ecuador	-0.023***	0.004	0.045***	0.112***
France	-0.073***	-0.058***	-0.059***	0.061***
Ghana	0.055***	0.046***	-0.033***	0.066***
Hungary	-0.223***	-0.193***	0.057***	-0.111***
India	-0.012**	-0.020***	-0.048***	0.022**
Indonesia	-0.071***	-0.070***	0.015	0.013
Iran	-0.030***	-0.007*	0.022***	0.093***
Ireland	-0.166***	-0.149***	0.048***	0.120***
Kenya	0.035***	0.034***	-0.005	0.064***
Kyrgyz Republic	-0.054***	-0.051***	-0.009	0.029***
Mexico	-0.039***	-0.026***	0.019*	0.074***
Nigeria	0.039***	0.042***	-0.197***	-0.168***
Panama	-0.073***	-0.043***	-0.011	0.097***
Portugal	-0.021***	0.002	0.004	0.028***
Puerto Rico	-0.041***	-0.019*	0.008	0.002
Romania	-0.074***	-0.044***	-0.035***	-0.047***
Vietnam	-0.017***	-0.008*	-0.026***	0.108***
South Africa	-0.034***	-0.030***	-0.004	0.040***
Spain	-0.056***	-0.041***	-0.03***	0.048***
Trinidad and Tobago	-0.034***	-0.005	0.068***	0.102***
United States	-0.092***	-0.083***	-0.001	-0.062***
Uruguay	-0.092***	-0.045***	-0.011	0.071***
Zambia	0.065***	0.047***	-0.021*	0.032***

**** p<0.001, ** p<0.01, * p<0.05, ⁺ p<.1*

Table 3.8 Multivariable models of combined contextual effects on the share of mothers in paid employment and the motherhood effect

	Share of mothers in employment				Motherhood effect			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Per capita GDP	0.019				-0.016*			
GDP squared	0.098*				0.002			
Poverty levels	-0.177†				-0.005			
Poverty Squared	0.040				0.009			
GINI	0.012†				0.002*			
Paid maternity leave (weeks)		0.000				0.000		
Maternity leave squared		0.000				0.000		
Part time		0.000				0.000		
Childcare enrollment 0-2			0.003				0.000	
Pre-primary enrollment			0.004				0.000	
Pupil-teacher ratio			-0.006				0.002	
Expenditure on pre-primary			0.179				-0.021	
Gender equality in society				-0.008				-0.010
Support for working mothers				0.517*				0.013
Stigma against housewives				-0.043				0.093†
Constant	-0.188	0.590***	0.285†	0.611	-0.138**	-0.018	-0.073*	-0.291
R-squared	0.140	0.100	0.350	0.620	0.370	0.040	0.060	0.270
N	31	20	26	17	31	20	26	17

**** p<0.001, ** p<0.01, * p<0.05, † p<.1*

Table 3.9 Multivariable models of the moderating effect of social position on the association between country contexts and the share of mothers in paid employment

	Effect of low social position				Effect of high social position			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Per capita GDP	-0.057***				0.031*			
GDP squared	-0.007				-0.032*			
Poverty levels	-0.003				0.047			
Poverty Squared	-0.003				-0.039†			
GINI	0.001				0.000			
Paid maternity leave (weeks)		-0.001				0.001		
Maternity leave squared		0.000				0.000		
Part time		0.002				-0.001		
Childcare enrollment 0-2			-0.002†				0.001	
Pre-primary enrollment			-0.001				0.001	
Pupil-teacher ratio			0.003				0.000	
Expenditure on pre-primary			0.006				-0.110	
Gender equality in society				-0.082				0.131***
Support for working mothers				0.044				-0.256**
Stigma against housewives				0.001				0.184**
Constant	-0.108	-0.087	-0.029	-0.215	0.214*	0.126*	0.097	0.303†
R-squared	0.380	-0.030	0.350	0.200	0.480	-0.020	-0.100	0.820
N	31	20	26	17	31 ¤	20	26	17

**** p<0.001, ** p<0.01, * p<0.05, † p<.1*

Table 3.10 Multivariable models of the moderating effect of social position on the association between country contexts and motherhood effects

	Effect of low social position				Effect of high social position			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Per capita GDP	0.006				-0.009			
GDP squared	-0.010				0.011			
Poverty levels	-0.025				-0.024			
Poverty Squared	0.012				-0.005			
GINI	-0.001				0.003*			
Paid maternity leave (weeks)		0.000				0.000		
Maternity leave squared		0.000				0.000		
Part time		-0.001				0.003†		
Childcare enrollment 0-2			-0.001*				0.000	
Pre-primary enrollment			0.000				0.000	
Pupil-teacher ratio			-0.001				0.003	
Expenditure on pre-primary			0.051				0.001	
Gender equality in society				0.026				0.031
Support for working mothers				-0.056				-0.139
Stigma against housewives				-0.058				0.122*
Constant	0.046	0.007	0.031	0.274†	-0.103	-0.031	0.000	0.090
R-squared	0.170	0.090	0.260	0.410	0.060	0.120	0.040	0.240
N	31	20	26	17	31	20	26	17

**** p<0.001, ** p<0.01, * p<0.05, † p<.1*

Chapter 4

Motherhood Effects on Self-employment

A version of this chapter was submitted for publication by Besamusca, J.

Abstract

Women with dependent children have repeatedly been shown to be more likely to be self-employed than other women. The *mumpreneurship* thesis explains this motherhood effect as a preference-based strategy to meet both good worker and good mother norms. The *disadvantaged worker* thesis argues that mothers in weak labor market positions are pushed into self-employment because of work-family conflict. Exploring patterns of motherhood effects across 23 high- and middle-income countries, I argue that the *mumpreneurship* and *disadvantaged worker* theses should not be considered as conflicting hypotheses, but rather as addressing separate social position groups. I identify four clusters of countries where either one, both, or neither of the two hypotheses can be confirmed. Country-level analyses indicate that more negative attitudes towards housewives are associated with larger motherhood premiums for women in high social positions, whereas higher enrollment and smaller classes in pre-primary education increase the motherhood premium for all groups.

4.1 Introduction

In 2011, thirteen percent of working women in OECD countries were self-employed, thus constituting a substantial share of the total female workforce (OECD, 2017). What is more, previous research from industrialized and developing countries alike has shown that women are effectively *more* likely to be self-employed when they care for dependent children (Blanchflower, 2000; McManus, 2001; van der Sluis, van Praag, & Vijverberg, 2005). To explain this motherhood effect, previous research in middle- and high-income countries has suggested that female self-employment is a reconciliation strategy that addresses the time and role incompatibilities faced by working mothers (Boden, 1999; Carr, 1996; Joona, 2017; Simoes, Crespo & Moreira, 2016; Taniguchi, 2002). This has made self-employment a phenomenon of interest to both scholars and policy makers in a time that work-family conflict has proven to be one of the foremost impediments to mothers' labor market participation and career advancement (Berglund et al., 2018; Hughes, 2003).

However, self-employed women, with or without dependent children, are not a homogeneous group and work in very diverse occupations. They include child minders, cleaners, sales persons, shop owners, potters, midwives, manicurists, consultants, designers, and so on. The complex intersection of motherhood status and social position in self-employment has sparked a debate about the push and pull factors that explain why mothers are overrepresented among the self-employed (Hughes, 2003; Johansson Sevä & Öun, 2015; McManus, 2001; Patrick, Stephens, & Weinstein, 2016). A number of work-family scholars have argued that self-employment offers an attractive avenue for mothers in high social positions, sometimes referred to as *mumpreneurs*, to reconcile career ambitions with intensive mothering ideals (Carr, 1996; Ekinsmyth, 2011; Georgellis & Wall, 2005). In apparent contradiction, other scholars have theorized self-employment as a precarious form of employment that mothers in low social positions are pushed into, because (real or perceived) work-family conflict makes it difficult to attain and retain jobs in dependent employment (Blanchflower, 2000; Budig, 2006a; Kalleberg, Reskin, & Hudson, 2000; Taniguchi, 2002).

These two theories, which I refer to as the *mumpreneurship* and *disadvantaged worker* theses, present diverging views on how work-family issues interface with inequality structures. In short, they expect that the motherhood effect on self-employment is driven by different social position groups. If, as the *mumpreneurship* thesis suggests, women in higher social positions strive to combine a career with intensive mothering through self-employment, motherhood effects reflect a largely preference-based search for work-family balance (pull). On the other hand, if mothers in low social positions are pushed into involuntary self-employment, motherhood effects should be primarily associated with barriers and disadvantage resulting from work-family conflict (push). Because one theory

explains the motherhood effect on self-employment through pull factors and the other through push factors, the *mumpreneurship* and *disadvantaged worker* theses are quickly perceived as opposing.

However, there are several reasons to suspect that the two are, in fact, not necessarily mutually exclusive. Firstly, both theories essentially describe behavior of mothers in reaction to the incompatibility of worker and mother roles in traditional, full-time, dependent employment. Second, the explanatory mechanisms of the two theses arguably speak to different social position groups. Third, a large body of literature has shown that work-family policies and cultural contexts affect the extent of work-family conflict and role incompatibility that employed mothers experience and that country-level contexts affect which social position group bears the brunt of this conflict (Gornick & Meyers, 2004; Korpi, Ferrarini, & Englund, 2013; Mandel, 2011; Pettit & Hook, 2009; Pfau-Effinger, 2005; Stier, Lewin-Epstein, & Braun, 2001). From a comparative perspective, the *mumpreneurship* and *disadvantaged worker* theses could therefore be true in different countries.

In this chapter, I aim to research the extent to which the *mumpreneurship* and *disadvantaged worker* theses explain motherhood effects on self-employment for women in different social positions in 23 high- and middle-income countries. I ask (1) how the motherhood effect on self-employment differs by women's social position, as well as (2) how country-level policies and preferences regarding work and family can explain the effect of social position on the motherhood effect. In so doing, I contribute to two debates about maternal self-employment: the extent to which mothers are pushed or pulled into self-employment and the relative importance of work-family policies and cultural attitudes for these selectivity processes (Annink & den Dulk, 2012; Hughes, 2003; Johansson Sevä & Öun, 2015). By testing the *mumpreneurship* and *disadvantaged worker* theses from a comparative perspective, the study also makes an empirical contribution to a field which has primarily been built on, often single-country, studies in a limited number of European and Anglo-Saxon countries (Annink, den Dulk, & Steijn, 2016; McManus, 2001; Tonoyan, Budig, & Strohmeyer, 2010). Finally, by using harmonized census data of the IPUMS International dataset, I am able to test these theories on a large-sample of self-employed women that allows for considerable generalization of the effects, which due to the relatively small number of women that is self-employed has often proven difficult in survey-based studies or non-random samples (Sevä & Öun, 2015).

4.2 Theoretical Background

4.2.1 Motherhood, self-employment, and social position

There are certainly many reasons for which mothers engage in self-employment. The vast literature on self-employed workers and entrepreneurs includes considerations of skill, expected gains, autonomy, low risk aversion, and access to starting capital (Blanchflower, 2000; Blanchflower & Oswald, 1998; Cramer et al., 2002; McManus, 2001; Van der Sluis, van Praag, & Vijverbos, 2005; Van Praag & Cramer, 2001). None of these reasons, however, explain why women who care for dependent children tend to be self-employed at higher rates than those who do not. Yet, empirically, the positive relationship between motherhood and women's probability of being self-employed has been solidly established (Boden, 1999; Carr, 1996; Joona, 2017; Taniguchi, 2002). In studies throughout North America and Western Europe, mothers were found more likely to be in self-employment than women without dependent children (McManus 2001; Simoes, Crespo, & Moreira, 2016). More recent studies have confirmed these findings in Eastern Europe (Gerber, 2004; Robert & Budoki, 2004; Tonoyan, Budig, & Strohmeyer, 2010), Asia (Yu & Zu, 2014; Zhang & Pan, 2012), Africa (Heath, 2017), and Latin America (Campaña, Giménez-Nadal, & Molina, 2017; Pisani & Pagán, 2004).

The literature thus coincides in expecting a positive effect of caring for dependent children on women's probability of being self-employed, which for the sake of brevity I refer to as motherhood effects. However, there is currently no consensus regarding the group of mothers and the specific work-family mechanisms that are driving these findings (Berglund et al., 2018; Johansson Sevä & Öun, 2015). In the last decades, two strands of empirically supported studies have explained the motherhood effect on self-employment as representing either a preference-based blending of paid work and care tasks or a precarious last resort. In industrialized nations, self-employed mothers have been portrayed as anything from running internet-based businesses from the living room when their kids are asleep or in school (Carr, 1996, Ekinsmyth, 2011; McKie, Biese, & Jyrkinen, 2013) to low-wage workers without entitlements to pensions, social security, or union representation (Berglund et al., 2018; Kalleberg, Reskin, & Hudson, 2000; Wall, 2014). In developing countries, maternal self-employment has both been heralded as a driver of inclusive economic growth (Buvinic & Gupta, 1997; World Bank, 2012; World Economic Forum, 2014) and condemned as the feminization of the most insecure form of labor (Chen, Vanek, & Heintz, 2006; Elson, 1999; Kabeer, 2000; Mandelman & Montes-Rojas, 2009).

The conceptualization of maternal self-employment in these two opposite ways is crucial to understanding the relationship between the motherhood effect and labor market inequality. One strand of literature would theorize that the motherhood effect is driven by affluent women's attempts to have it both ways; the other that the most vulnerable

mothers are left holding the short end of the stick. As such, motherhood is expected to intersect in opposite ways with women's social position, i.e. women's relatively advantaged or disadvantaged position in social hierarchies. In sociology, such social hierarchies have been measured as women's occupational class (Arüm & Muller, 2004; Budig, 2006a, 2006b), their earnings (Bjuggren & Henrekson, 2018; Kalleberg, Reskin, & Hudson, 2000), and their educational background (Cáceres-Delpiano, 2012; Campaña, Giménez-Nadal, & Molina, 2017) amongst other things. In this study, I theorize actors' social position as dependent on their educational achievement relative to that of others in the same country. I choose this approach, because it allows me to classify the women that do and do not engage in paid labor in a similar way and avoids debates about whether occupations signal the same social position when performed in dependent compared to self-employment (Müller & Arum, 2004). In the remainder of this section, I discuss the premises of these two strands of literature, as well as the consequences for the expected motherhood effect for women in different social positions and country contexts.

4.2.2 The short or long end of the stick: Individual level mechanisms

In essence, the *mumpreneurship* thesis presents self-employment as a strategy for women to simultaneously meet both good worker and good mother norms. Proponents like Carol Ekinsmyth (2014) argue that self-employment allows mothers to blur business and care activities, both time-wise and spatially. As such, mumpreneurship denies the mutual exclusiveness of *home* and *work* spheres that is often assumed in traditional labor relations. Pragmatically, the *mumpreneurship* literature views self-employment as a strategy to split time between work and family life. Self-employment has been associated with greater autonomy over working hours compared to waged or salaried work and is regularly found as a self-reported motivation for choosing self-employment (Annink & den Dulk 2012; Boden, 1999; Ekinsmyth, 2013; Hughes, 2003; Lombard, 2001). Studying Swedish men and women, Johansson Sevä and Öun (2015) report that self-employed women with what they refer to as "family and lifestyle motives" are considerably less likely to report work-family conflict.

Evidence that self-employed mothers plan the hours and location of their business activities around children's school and after-school engagements suggests the organization of time is of prime importance (Bjuggren & Henrekson, 2018; Ekinsmyth, 2011; Boeri, 2018). Self-employed mothers have been found to run businesses that are less profitable, more often part-time, and have lower survival rates than those of women without dependent children (Arum & Müller, 2004; Hundly, 2000; Loscocco & Bird, 2012; McManus, 2001). Evidence from Spain and Latin America indicates that self-employed mothers spend more time on educational childcare activities than their peers in dependent employment (Campaña, Giménez-Nadal, & Molina, 2017; Gimenez-Nadal, Molina, & Ortega, 2012). Home-

based self-employment has also been reported to be a work choice that does not violate gender norms against working mothers, nor against stay-at-home mothers (Bjuggren & Henrekson, 2018; Boeri, 2018; Kabeer, 2000). The *mumpreneurship* literature thus considers self-employment to occupy the middle ground between home-making and dependent employment through the more flexible organization of both time and income, as well as enabling women to fulfill conflicting obligations as *good mothers* and *good workers* (Boden, 1999; Carr, 1996; Ekinsmyth, 2011; Simoes, Crespo, & Moreira, 2016).

The *mumpreneurship* thesis has commonly presented motherhood effects on self-employment as a choice for affluent women whose families do not depend on their incomes and can therefore afford to flexibly adjust work intensity in the business (Annink & den Dulk, 2012; Carr 1996; Ekinsmyth, 2013). This does not imply that mothers in high social positions are the only women who prefer such autonomous career-mothering interfaces, but that they are more able to select into self-employment due to their higher financial security and skill levels. Mothers in lower social positions are deterred from becoming self-employed by the unsteady income compared to waged or salaried work, as well as the lower access to social security (McManus, 2001; Zhang & Pan, 2012). The relation between the motherhood effect and social position is expected to be positive due to highly positioned mothers' superior capabilities to choose self-employment, not because of distinctive caring or career preferences. The *mumpreneurship* thesis, while primarily focused on explaining behavior of mothers in higher social positions, can thus be conceived of as a sliding scale on which motherhood effects are larger and more positive as women are more highly positioned. Empirical studies have confirmed larger motherhood effects for women in higher social positions in the United States in the 1980s and 1990s, as well as more recently in Belgium, Germany, the Netherlands, and the UK (Blanchflower, 2000; Boden, 1999; Carr, 1996; Ekinsmyth, 2011; Georgellis & Wall, 2005). The *mumpreneurship* thesis thus predicts that *the motherhood premium on self-employment is larger for women in higher social positions (H1a)*.

The *disadvantaged worker* strand of research holds a very different view on motherhood effects on self-employment. A range of studies report that self-employment is much more polarized than dependent employment in terms of earnings, working hours, and job quality (Kalleberg, Reskin, & Hudson, 2000; Mandelman & Montes-Rojas, 2009; McManus, 2001; Patrick, Stephens, & Weinstein, 2016). Proponents argue that women in high social positions are generally self-employed because of the career opportunities and higher earnings rather than for reasons related to motherhood (Budig, 2006a, 2006b; Patrick, Stephens, & Weinstein, 2016; Taniguchi, 2002; Tonoyan, Budig, & Strohmeyer, 2010). In a qualitative study in the Netherlands, Annink and den Dulk (2012) discredit the idea of self-employment as a reconciliation strategy by showing that self-employed mothers report greater work-life

conflict than those in dependent employment, particularly if they are the main earner. These scholars argue that while the entrepreneurial activities of mothers in high social positions raise the overall *level* of maternal self-employment, they do not explain the gap between women with and without dependent children.

Women in low social positions, on the contrary, are theorized to be pushed into self-employment due the work-family conflict associated with motherhood in the available low-quality jobs. The *disadvantaged worker* thesis views dependent employment as a relatively privileged form of paid labor that is difficult to attain for actors in low social positions, who are then relegated to more precarious forms of labor (Kalleberg, Reskin, & Hudson, 2000; van der Sluis, van Praag, & Vijverberg, 2005; Zhang & Pan, 2012). On top of that, mothers in lower social positions are less able to find or hold on to waged or salaried jobs than their peers without care obligations because of the rigid separation of work and family responsibilities in traditional labor relations (Gornick & Meyers, 2004; Jacobs & Gerson, 2004). Mothers in low social positions are pushed into precarious self-employment involuntarily because the combination of their weak labor market position and their care obligations make it difficult to attain and retain jobs in traditional full-time, dependent employment (Kalleberg, Reskin, & Hudson, 2000).

Conversely, women are less likely to be pushed into self-employment due to motherhood if they are in higher social positions, because of their stronger bargaining position, their larger autonomy over working hours, and higher wages and entitlements in professional dependent employment (McManus, 2001; Müller & Arum, 2004; Zhang & Pan, 2012). Studies report that large shares of self-employed mothers earn low wages and lack entitlements to health care and pensions in a number of countries, including the US and China (Budig, 2006b; Kalleberg, Reskin, & Hudson, 2000; Zhang & Pan, 2012). The *disadvantaged worker* thesis thus predicts that *the motherhood premium on self-employment is larger for women in lower social positions (H1b).*

4.2.3 Policies and attitudes: country level mechanisms

On the individual level, the *mumpreneurship* and *disadvantaged worker* theses thus suggest that motherhood effects on self-employment are driven by preferences for splitting time between paid work and care work or by a weakening of women's bargaining position through work-family conflict respectively. By extension, the theories would suggest that different country-level contexts will increase or reduce the motherhood and social position effects. Specifically, the accessibility of alternative strategies for reconciling work and family life and cultural preferences would be expected to make one or the other mechanism more salient.

Alternative strategies for reconciling work and family life can both reduce work-family conflict and allow for other ways to meet both good mother and good worker norms.

Following the logic of the *mumpreneurship* thesis, the availability of alternative ways to split time between work and family obligations within the dependent employment relationship, such as longer maternity leaves and part-time employment, would be expected to reduce the attractiveness of self-employment. Previous single-country studies also suggest that there is cross-country variation in the extent to which self-employment is used as a part-time work strategy (Annink, den Dulk, & Steijn, 2016; McManus, 2001). Under the *disadvantaged worker* thesis, where mothers in low social positions are pushed into self-employment due to their inability to combine care obligations with dependent employment, the availability of both part-time employment and childcare would present a way of reducing work-family conflict within the traditional employer-employee relationship (Berglund et al., 2018). In a study of the US and 22 Western and Eastern European countries, Tonoyan, Budig, and Strohmeyer (2010) do find that mothers in non-professional occupations were less likely to be self-employed in countries with higher enrollment in early childhood care and education. Thus, *in countries with higher shares of part-time work and longer paid maternity leaves, the motherhood effects of both high and low social position women are expected to be smaller (H2a), and higher enrollment in early childhood care and education will be associated with a smaller motherhood effect for women in a low social position (H2b).*

Secondly, the *mumpreneurship* thesis suggests mothers opt into self-employment to combine intensive mothering ideals with a career. Single-country studies have shown that mothers are pulled into self-employment in some countries to meet intensive mothering ideals, whilst avoiding the stigma that comes from being a housewife (Bjuggren & Henrekson, 2018; Ekinsmyth, 2011; Patrick, Stephens, & Weinstein, 2016). In a study of American young adults and the families they grew up in, Gerson (2010) describes how disappointed homemakers return to work in some limited paid work engagement to escape boredom and isolation. In South Asia, Boeri (2018) and Kabeer (2000) show that home-based self-employment does not carry the same stigma on working women as factory work does, whereas Islam and colleagues (2018) find that female-run beauty parlors in Bangladesh flourish in those communities where the practice is more socially acceptable. Mothers in countries with a stronger aversion of either housewives or working mothers, then, would be more likely to be in self-employment compared to dependent employment. Thus, the *mumpreneurship* thesis would predict that *more negative attitudes towards working mothers or housewives in a country will be associated with larger motherhood effects for women in a high social position (H3a), whereas disadvantaged worker theory suggests that preferences do not affect the motherhood effect for women in a low social position (H3b).*

4.3 METHODS

4.3.1 Data

I use the IPUMS International dataset, which harmonizes national census data from both industrialized and developing countries (Minnesota Population Center, 2017). I select all high- and middle-income countries that provide a dataset within the time frame from 2009 to 2011, which is the most recent period for which a considerable number of datasets are available, and have information on at least motherhood status, status in employment, class of worker, occupation, and spousal characteristics. This results in a sample of 23 countries including eight high-income (Canada, France, Hungary, Ireland, Portugal, Puerto Rico, Spain, and the USA), ten upper-middle-income (Belarus, Botswana, Brazil, Costa Rica, Dominican Republic, Ecuador, Iran, Mexico, Panama, Romania), and five lower-middle-income (Armenia, Ghana, India, Vietnam, and Zambia) countries that vary substantially in terms of work-family policies as well as cultural contexts. To ensure sufficient observations for the group of self-employed women, I use the full public use samples, except in countries Brazil, France, Mexico, and Vietnam, where samples of five million are drawn. I select women between the ages of 18 and 55 and exclude men, women in full-time education and the agricultural sector, resulting in an analytical sample of just over 9.1 million women. A table with sample sizes by country is found in the appendices to this chapter (table 4.5). For the country-level indicators, I use data from various publicly available sources, as detailed in the Section 4.3.2 and in the description of the dataset in this chapter's appendices (table 4.4).

4.3.2 Operationalization

The dependent variable is a categorical indicator measuring whether women are self-employed, non-employed, or in dependent employment. However, in the analyses, I focus on the probability of being self-employed versus in dependent employment. In line with the ILO (2000) definition, dependent employment is considered as paid work outside the household, but possibly in the informal sector. Self-employment status contains entrepreneurs regardless of whether they do or do not hire workers. There are two main independent variables: motherhood status and social position. To measure motherhood in a way that best captures the dimension of work-family conflict, motherhood status is a dummy variable that takes the value one if a woman reports living with at least one dependent child under the age of 15. Thus, motherhood is measured as having care responsibilities. Women without children, with adult children, or children that do not live with them are considered as not having dependent children. Social position is operationalized as a woman's relative educational achievement. IPUMS International contains harmonized data on the educational attainment of women and their spouse in thirteen categories running from no schooling to

having completed university. Given the inclusion of both high- and middle-income countries in this study, absolute levels of education are unlikely to signal the same degree of (dis) advantage across the countries. I therefore construct dummies for low, medium, and high social positions based on the within-country distribution across the educational levels, each containing about a third of the women in a country. The coding is harmonized within the three country income levels in order to facilitate comparability and allow for compositional differences in the social position distribution, as described in table 4.4 (appendix).

On the individual-level, there are a number of commonly included control variables. These are age (mean centered) and age squared, a dummy variable for having a spouse and/or parent who is self-employed to account for family businesses (ref. no self-employed parent or spouse), and a dummy for being unmarried (ref. married). A dummy variable for living in a rural area is included in the analyses of all countries (ref. urban), except Spain, the USA, Uruguay, Zambia, and Puerto Rico. To avoid misidentifying the social position of some mothers who may have married into more or less privileged families than their own education would indicate, I classify the spouses in the same three-category social position variable and code partners as higher or lower positioned if they score one category above or below their spouse.

On the country-level, I include indicators for work-family reconciliation and cultural attitudes. For the accessibility of options to split time between paid work and mothering, I control for the share of employed women that work part-time. Data on part-time employment is sparse outside of the European and Anglo-Saxon countries and therefore I use data from the World Economic Forum's Global Gender Gap Report, which reports on part-time employment for the first time in 2014. For maternity leave, I use statutory weeks of paid maternity leave at the national level in 2009 from the ILO TRAVAIL database. I measure early childhood care and education through two participatory variables: the enrollment of children under three and enrollment in pre-primary education. To address concerns of endogeneity, I also introduce two quality measures: public investment in pre-primary education as a share of GDP and the number of pupils per teacher in pre-primary education. Data are taken from the UNESCO Institute for Statistics and Eurostat for 2009. For attitudes towards housewives and working mothers, I use data from the 2008 *European* and 2006-2013 *World Values Surveys* for the 18 countries for which they are available. The surveys contain two items asking respondents to rank their agreement with the statements that "being a housewife is just as fulfilling as working for pay" and "pre-school children suffer when the mother works" on a four point scale (0 – strongly agree; 3 – strongly disagree). I calculate the mean score for each country on each item and reverse-code the statement on working mothers so higher values indicate less favorable opinions, or higher stigmatization. Since the two items do not form a reliable scale, I test them separately.

4.3.3 Analytical strategy

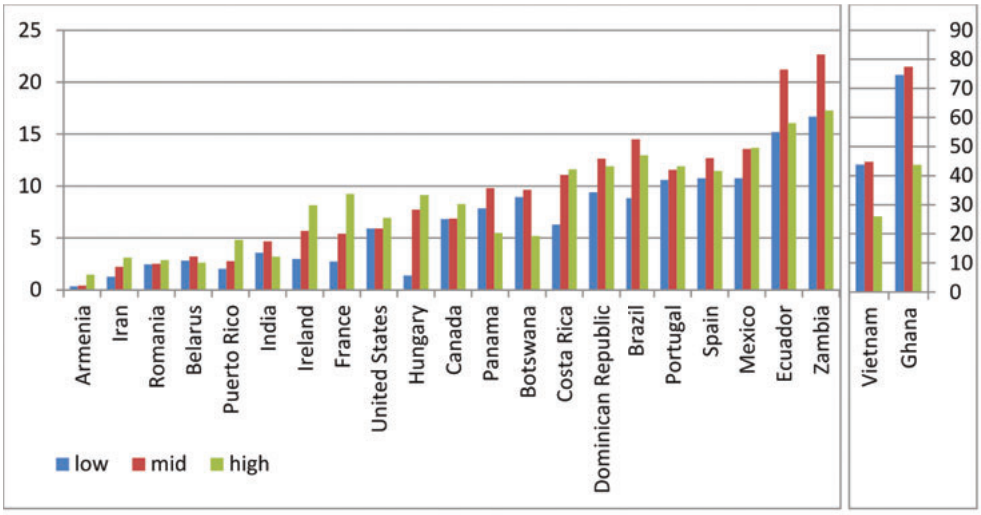
While the analyses focus on the effect of motherhood on being self-employed compared to dependent employment, I do model the three outcomes in a multinomial logit model, as dependent employment and self-employment statuses are unlikely to be independent of non-employment status. I also stress that I measure outcomes and associations rather than choices and causal effects, since the status in (self)employment and motherhood are measured at one point in time and the analyses cannot reveal the sequence or duration of these behaviors.

Since the 23 countries differ substantially from each other, I avoid modelling techniques that assume equal effects of micro-level variables across countries (Heisig et al., 2017; Stegmüller, 2013). I use a two-step multilevel design. In the first step, I run 23 separate multinomial logistic regressions to estimate the effect of motherhood on women's probabilities of being self-employed, non-employed, or in dependent employment. These regressions produce an estimate of the overall motherhood effect on the probability of being in self-employment compared to dependent employment, controlling for the abovementioned individual level control variables. To address concerns regarding the comparability of the effect sizes of logistical coefficients across analytical samples and model specifications, I report average marginal effects (AME) (Breen, Holm, & Karlson, 2014; Breen, Karlson, & Holm, 2018). To measure the moderating effect of social position, I then introduce two dummies for low and high social position and interact them with the variable for motherhood. I use the contrast operator of Stata's margins command (contrast of predictive margins, CPM), which estimates the differences in the average marginal effect of motherhood between women in low and medium social positions, and between the high and medium social positions.

In second-step analyses, I use the estimated AME of motherhood and contrasts of predictive margins (CPM) of the low and high social position indicators as dependent variables to estimate the effect of the country level variables in a set of OLS regressions. Following Bol et al. (2015) and Lewis and Linzer (2005), I apply the edvreg package for Stata, which takes account of any uncertainty in the 23 step-one regressions, by using the standard errors around the estimates as weights in the second-step models. Since the second-step analyses still contain limited statistical power, effectively estimating associations based on 23 countries at one point in time (or 18 in the models including the variable for attitudes), I show the bivariate regressions of the country level contexts on the overall motherhood effect and on the social position effect (table 4.2, regression series a through c). In order to address potential or even probable omitted variable bias as best as possible, I also show all associations controlled for per capita GDP (table 4.2, regression series d through f). Significant associations are displayed in figures 4.4 through 4.6 while overlaying the scatterplots of the

county effects and positions on the relevant explanatory variables. Additional models show the strength of the association when controlling for other correlated country characteristics (table 4.3), which should be considered as a purely descriptive robustness check in view of the limited degrees of freedom in the models. Finally, I perform a number of general robustness checks of the second-step results: I check for influential outliers using Cook's D and re-run analyses without the outliers, as well as splitting the sample by the 11 countries with the lowest and 12 with the highest per capita GDP. Results of these checks are reported in the results section.

Figure 4.1 Self-employed mothers as a share of all mothers by country and social position



Note: mothers employed in the agricultural sector are excluded

4.4 Results

4.4.1 Effects of motherhood and social position on self-employment

Before measuring the effect of motherhood, I descriptively examine the share of mothers in non-agricultural self-employment (figure 4.1). With the exception of Ghana (72%) and Vietnam (40%), countries vary between less than 1% in Armenia to 19% in Zambia. As figure 4.1 shows, the share of mothers that is self-employed increases with their social position in twelve countries: Armenia, Canada, Costa Rica, France, Hungary, Iran, Ireland, Mexico, Portugal, Puerto Rico, Romania, and the US. In contrast, Botswana, Ghana, and Vietnam show the opposite pattern, which would suggest mothers negatively select into self-employment. In the remaining eight countries (Belarus, Brazil, Dominican Republic, Ecuador, India, Panama,

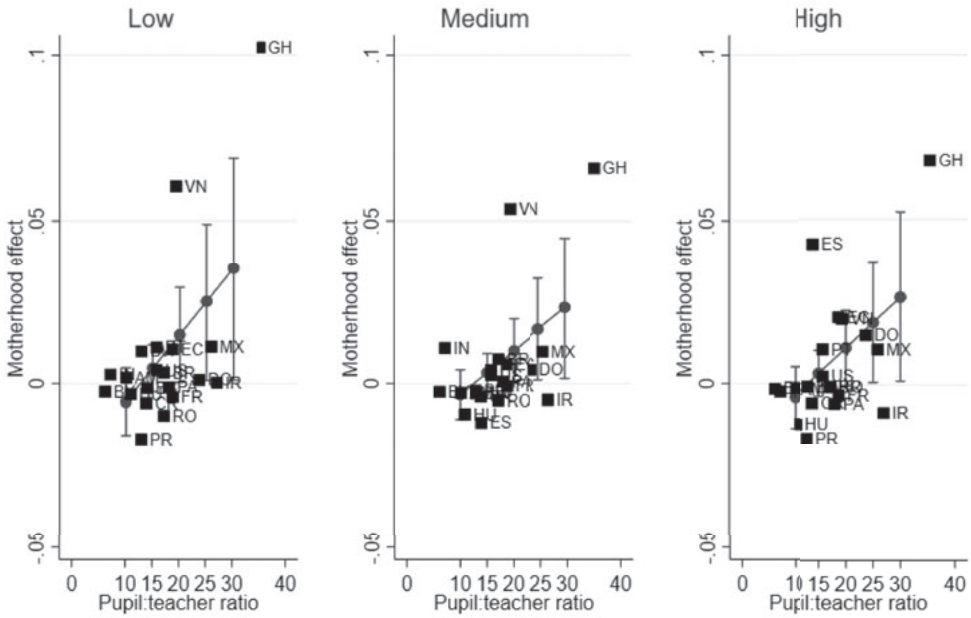
Spain, and Zambia) mothers in the middle group are most likely to be in self-employment. The share of mothers that is self-employed in low, middle, and high social positions thus varies across countries too.

Table 4.1 Average marginal effects of motherhood and contrast of predictive margins of social position by country

	Model 1	Model 2		
	Motherhood effect	Main effect	CPM Low social position	CPM High social position
Armenia	0.000	0.000	0.005*	0.002
Belarus	-0.002**	-0.002**	0.002*	-0.004***
Botswana	0.004	0.004	0.007	0.004
Brazil	0.002*	0.005***	-0.012***	-0.008***
Canada	0.007***	0.006***	0.001	-0.009**
Costa Rica	-0.007***	-0.003	-0.009*	0.000
Dominican Republic	0.008***	0.008***	-0.006*	0.007*
Ecuador	0.014***	0.015***	-0.004	0.022***
France	-0.002***	-0.001*	-0.007***	-0.008***
Ghana	0.103***	0.087***	-0.045***	0.005
Hungary	-0.010***	-0.008***	0.003	-0.011***
India	0.005	0.005	-0.006	-0.001
Iran	-0.004***	-0.003***	0.004***	0.009***
Ireland	-0.007***	-0.006***	0.005†	0.003
Mexico	0.012***	0.013***	-0.011***	0.007*
Panama	-0.001	-0.001	-0.007†	-0.001
Portugal	0.004*	0.006**	-0.011**	0.005
Puerto Rico	-0.009	-0.009*	-0.012	-0.006
Romania	-0.005***	-0.004***	-0.004***	0.005***
Spain	0.001	0.001	-0.004*	-0.007**
United States	0.003***	0.003***	0.002*	-0.006***
Vietnam	0.051***	0.049***	-0.030***	-0.038***
Zambia	0.020***	0.019***	-0.029***	0.014***

*Note: *** p<0.001, ** p<0.01, * p<0.05, † p<.1. Model 1 and model 2 controlled for age, marital status, rural setting, self-employed spouse or parent, spouse social position. Model 3 controlled for all abovementioned controls, social position, and the interaction of motherhood status and social position.*

Figure 4.2 Average marginal effect of motherhood on self-employment status by country



Note: point estimates are based on table 4.1, model 1. The 95% confidence intervals are shown.

The share of mothers in self-employment, however, cannot tell us whether these patterns are specific to mothers, i.e. different from the behavior of women without dependent children. Therefore, I then measure the effect of motherhood status in each country in 23 multinomial logistic regressions (table 4.1, model 1; figure 4.2). The results show a mixed pattern, with just over half (12) of the countries showing a significant and positive relationship between motherhood and women's probability of being self-employed after controlling for all individual level variables except women's social position. This is indicated in the table by average marginal effects (AME) above zero in table 4.1 and the point estimates to the right of the zero line in figure 4.2. While some of the effects may appear small, the reader should take into account that the AMEs measure the increases in absolute probability of being self-employed. Canada's motherhood effect of 0.007 (sig p< .001) thus implies that mothers' probability of being self-employed is 0.7 percentage points higher than that of women without dependent children; a considerable effect size taking into account that about 7% of Canadian mothers are self-employed. Vietnam and Ghana are outliers, showing mothers' probability of being self-employed exceeds that of other women by five percentage points (Vietnam) and 10 percentage points (Ghana) respectively. I find non-significant effects

in four countries (Armenia, Panama, Puerto Rico, and Spain) and negative effects in Belarus, Costa Rica, France, Hungary, Iran, Ireland, and Romania (table 4.1, model 1).

I then test whether motherhood effects differ significantly by women's social position. Table 4.1 (model 2) shows the motherhood effect interacted with the dummies for being in a high and low social position; the main effect of motherhood in model 2 thus reflects the estimated penalty or premium for the medium social position group. The last two columns show the size of the interaction terms. Thus, they do *not* indicate which group of mothers is most likely to be self-employed in absolute terms, but for which group of women the motherhood *effect* is largest. The *disadvantaged worker* theory predicts women in low social positions will experience larger motherhood effects than their medium and high social position peers. Empirically, this could be tentatively confirmed either by a positive effect of being in a low social position (low social position women experience larger motherhood premiums than their medium social position peers) or by a negative effect of being in a high social position (high social position women experience smaller motherhood premiums than their medium social position peers). In this vein, model 2 (table 4.1), indicates that the effect of motherhood for women in low social positions is significantly larger compared to their medium social position peers in 4 countries and smaller for women in high social positions in 8 countries. The *mumpreneurship* theory, on the contrary, predicts motherhood effects are larger for women in high social positions than for women in medium and low social positions. Six countries show larger effects for high social position mothers and a negative effect of being in a low social position is found in twelve.

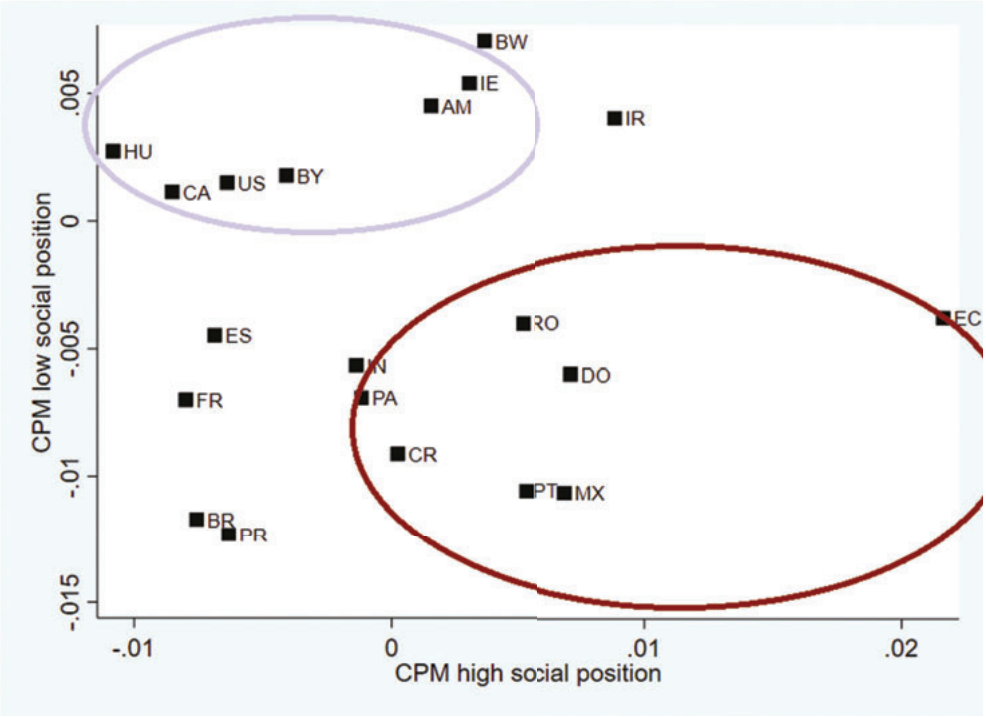
The effects of the low and high social position dummy variables are plotted together in figure 4.3. Displaying the effects of being in a low (y-axis) and a high (x-axis) social position simultaneously presents a visual aid to quickly examine two issues: first, in which countries the estimated motherhood effects conform to the *mumpreneurship* or *disadvantaged worker* theses; second, whether these hypotheses are mutually exclusive interpretations of the moderating effect of social position on the motherhood effect. In the light purple circle in the upper left corner is a group of six countries, where estimated motherhood effects conform to expectations under the *disadvantaged worker* thesis: they have either a positive effect of being in a low social position and a negative effect of being in a high social position (Belarus, USA), or one of the above in combination with a non-significant effect on the other social position dummy variable (Armenia, Canada, Hungary, Ireland). As the results in table 4.1 model 2 show, effect sizes indicate that there are motherhood premiums for Canadian and US women in low and medium social positions. In Armenia, only women in low social positions experience a (positive) motherhood effect. In Ireland, Hungary, and Belarus, three countries with a negative main effect of motherhood, I find that motherhood penalties are smaller or non-existent for the low social position group. In the dark red circle

in lower right corner, seven countries show motherhood effects in line with expectations under the *mumpreneurship* thesis, as do outliers Ghana and Zambia (excluded from figure, see table 4.1 model 2 for estimates). Results in the Dominican Republic, Mexico, Romania, and Zambia conform perfectly to the theory, showing a significant negative effect of being in a low social position on the motherhood effect and a significant positive effect of being in a high social position. In Ecuador, a motherhood premium is found for all women, but it is significantly larger for those in a high social position. In the remaining four countries (Costa Rica, Ghana, Panama, Portugal) the effect of being in low social position is negative, whereas the high social position group does not differ significantly from the medium group. Thus, two countries conform perfectly to patterns expected under the *disadvantaged worker* thesis (Belarus and the USA) and four do imperfectly. Incidence patterns expected under the *mumpreneurship* thesis are fully met in four countries (Dominican Republic, Mexico, Romania, and Zambia) and at least partially in five more.

Figure 4.3 also shows that nine countries do not conform to either or conform to both of the theories. In Iran, the motherhood effect is larger for women in both low and high social positions. Table 4.1 shows that the main effect of motherhood is negative in Iran (-.003, sig. p<.001), with effect sizes of the two social position variables (.004 and .009, sig. p<.001) indicating motherhood premiums do exist for the high and low social position groups. In the last, lower left corner of the graph, are France, Brazil, Spain, and outlier Vietnam (not shown), which show significant negative effects of both the high and low social position dummies and therefore do not conform to either the *disadvantaged worker* or the *mumpreneurship* theory.

These results indicate that the *mumpreneurship* and *disadvantaged worker* theses are in fact not mutually exclusive. It suggests that it might be more helpful to think of both as explaining why a motherhood effect is expected for each social position group. This would result in four possible outcome patterns, including not only larger effects for either the low or high social position groups, as displayed on the diagonal running from the upper left to lower right corner, but also allowing for high-high or low-low combinations, as found in Brazil, Iran, France, Spain, and Vietnam.

Figure 4.3 Contrasts of predictive margins of being in a low or high social position compared to middle social position by country



Note: point estimates are based on table 4.1, model 2. The 95% confidence intervals are shown.
Note: outliers that were excluded from the figure are Vietnam, Ghana, Zambia, and Spain. CPMs can be found in table 4.1, model 2.

4.4.2 Motherhood effects across countries

To attempt to explain country variation in the size of the motherhood effect on self-employment as well as the moderating effect of being in a high or low social position, I then examine the effects of work-family policies and cultural contexts. In table 4.2, I show the regressions of the average marginal effect of motherhood and the contrasts of predictive margins for being in low and high social positions on the indicators for work-family policy and cultural contexts, first bivariately (left) and then controlling for per capita GDP (right). Each cell in the table represents a separate regression. For example, the negative coefficient of childcare enrollment in the first column with results (-.0003, n.s; column a) means that the bivariate association between the childcare enrollment rate and the main effect of motherhood is negative; this effect is more negative for women in a high social position (-.0001 n.s., column c).

Table 4.2 Effects of work-family policies and cultural contexts on the size of the motherhood and social position effects

	Bivariate regression			Controlled for per capita GDP		
	(a)	(b)	(c)	(d)	(e)	(f)
	Main effect of motherhood (AME)	Low social position (CPM)	High social position (CPM)	Main effect of motherhood (AME)	Low social position (CPM)	High social position (CPM)
Work-family policies						
Part-time	-0.0001	0.0001	0.0003	0.0000	0.0001	0.0004
Maternity leave	0.0000	0.0000	-0.0001	0.0000	0.0000	-0.0001
Childcare enrollment 0-2	-0.0003	0.0001	-0.0001	0.0002	-0.0002	0.0000
Pre-primary enrollment	0.0001	-0.0001	0.0000	0.0002	-0.0001	0.0000
Investment in pre-primary	-0.0022	-0.0025	-0.0094	-0.0004	0.0018	-0.0004
Pupil-teacher ratio	0.0021**	-0.0010**	0.0004	0.0020**	-0.0010**	0.0004
Attitudes						
Housewife stigma	0.0214	-0.0142†	0.0144†	0.0172	-0.0120	0.0133
Working mother stigma	-0.0090	0.0028	0.0095	-0.0341	0.0141	0.0040

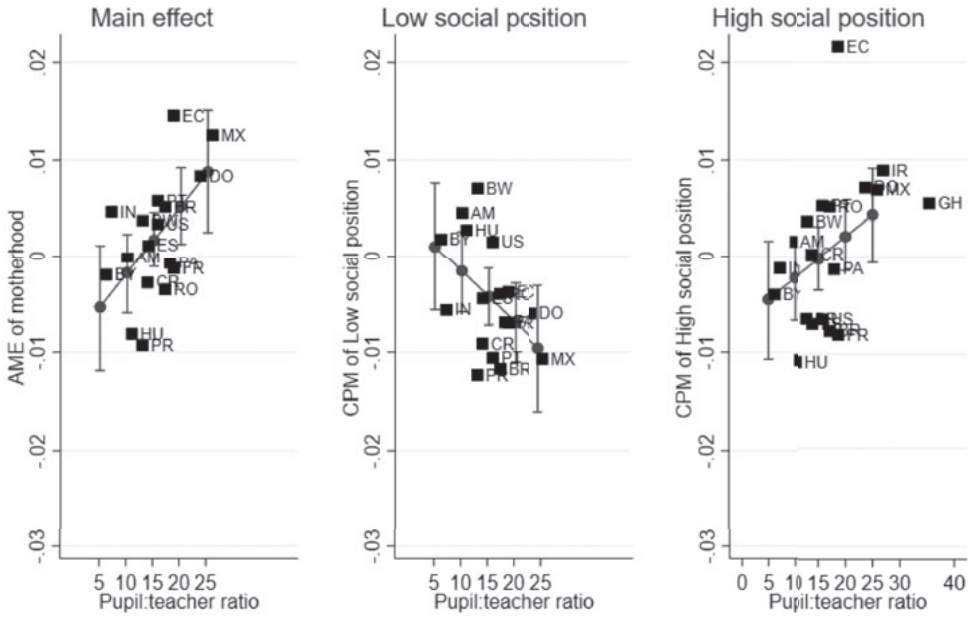
*Note: *** p<0.001, ** p<0.01, * p<0.05, † p<.1.*
Note: each cell represents the coefficient of the country level indicator in a regression of the AME of motherhood and CPMs of low and high social position bivariately (left) or controlled for per capita GDP (right).

I examine the relation between the motherhood effect, social position, and a number of work-family policies. The *mumpreneurship* thesis predicts that the availability of part-time work and longer paid maternity leave will reduce the positive effect of being in a high social position, whereas the *disadvantaged worker* thesis predicts that higher enrollment in early childhood care and education, maternity leave, and part-time employment will all be associated with a reduction in the positive effect of being in a low social position. No effects of part-time work or maternity leave are found; robustness checks show the length of paid maternity is significantly and positively related to the size of the high social position effect in the sample of the 11 countries with the lowest per capita GDP (not shown).

To measure the association of the motherhood effect with early childhood care and education, I examine two enrollment measures (childcare under three and pre-primary education) and two quality indicators (public investment in pre-primary education as a share of GDP, and the number of pupils per teacher in pre-primary education). As table 2 shows, the association with enrollment of children under three is negative overall, whereas enrollment in pre-primary education is positively associated with motherhood effects. While

non-significant, these associations are in line with earlier findings by Tonoyan and colleagues (2010), who correlate the share of mothers in self-employed with similar indicators for the U.S. and a number of European countries.

Figure 4.4 Marginal effects of the number of pupils per teacher in pre-primary education with the motherhood and social position effects

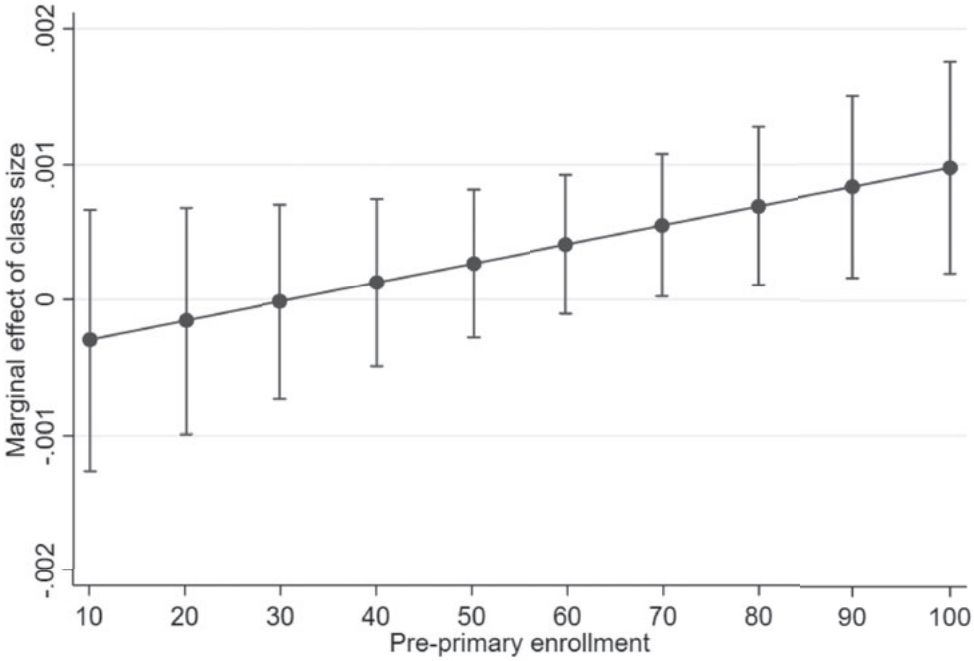


Note: Marginal effects are based on table 4.2, models a through c. The 95 percent confidence intervals are presented. Country positions represent the binary association between the independent variables and the motherhood effect. Ghana, Iran, and Vietnam are excluded from the left and middle scatter plots, Vietnam from the right scatter plot.

A stronger and significant association exists between motherhood effects and the pupil-teacher ratio (table 4.2). The bivariate regression models show a positive effect of the pupil-teacher ratio on the main effect of motherhood (.00021, sig. p<.01, column a) that is replicated after controlling for per capita GDP (column d). These results indicate that the motherhood effect on self-employment is larger in countries where there are more children per pre-primary education teacher. In other words, the overrepresentation of mothers in female self-employment is larger when class size goes up. Though positive, the association with the effect of being in a high social position is not significant with or without controls for per capita GDP, meaning that a higher pupil-teacher ratio does not increase the motherhood effect for women in high social positions at a significantly greater rate than for medium social

position women. The effect is significant when excluding Vietnam. The negative associations with the CPM of being in a low social position (-.001, sig. p<.01; columns b, e), however, indicate that women in low social positions are less likely than their peers to experience a motherhood premium in countries with higher pupil-teacher ratios. To aid the interpretation, figure 4.4 visualizes the positive effects of the pupil-teacher ratio (x-axis) on the AME of motherhood (y-axis, left pane). It also shows the negative association with the motherhood effect of low social position women compared to the medium group (middle pane) and the stronger positive effect for the high social position (right pane) compared to the medium group.

Figure 4.5 Marginal effects of the number of pupils per teacher in pre-primary education on the motherhood at different levels of enrollment



Note: Marginal effects are based on table 4.3, model 2. The 95 percent confidence intervals are presented.

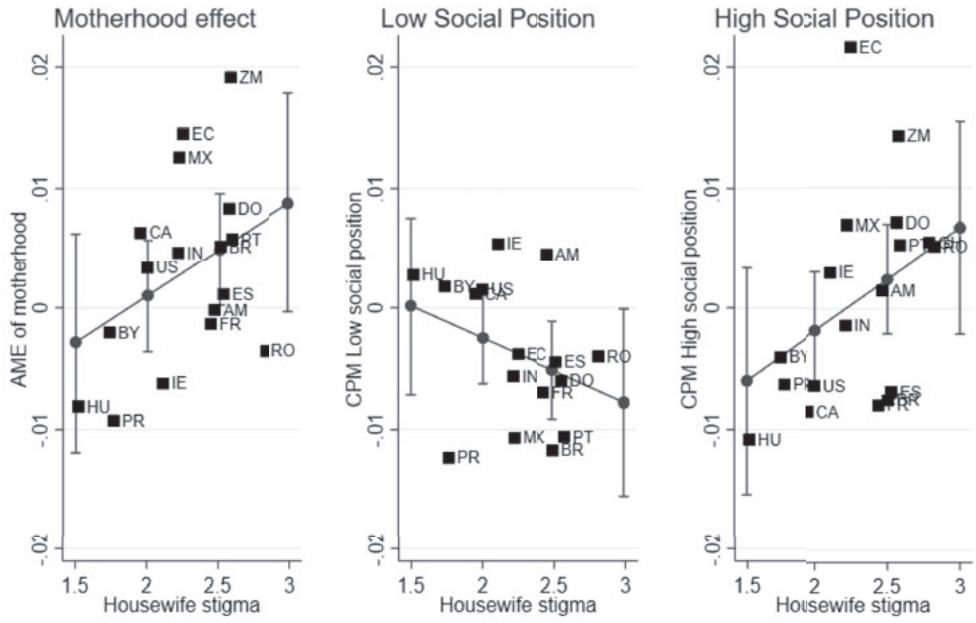
Table 4.3 Sensitivity checks of the effects of pre-primary care and housewife stigma on the size of the motherhood and social position effects

	Main effect		Low social position effect				High social position effect	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre-primary enrollment	0.0000	-0.0006*	-0.0001	0.0002				
Pupil-teacher ratio	0.0020**	-0.0014	-0.0009*	0.0007				
Pre1 * pupil-teacher		0.0000**		0.0000*				
Housewife stigma					-0.0181†	-0.0166†	0.0073	0.0078
Working mother stigma					0.0011	-0.0653	0.0104	-0.0045
Housewife * working mother stigma						0.0293		0.0066

**** p<0.001, ** p<0.01, * p<0.05, † p<0.1*

Figure 4.4, however, also shows that both the main effect of motherhood and the effect of being in a low social position are only estimated to be significant at higher pupil-teacher ratios, as indicated by the confidence intervals that do not overlap the zero-line on the y-axis (over 20 pupil per teacher for the main effect, over 15 for the low social position effect). As a sensitivity check, I therefore test whether these effects of the pupil-teacher ratio in pre-primary education hold when controlling for enrollment, as shown in models 1 through 4 of table 4.3. Models 1 and 3 add pre-primary enrollment as a control variable, replicating the positive association of the pupil-teacher ratio with the main effect for motherhood (model 1) and the negative association with the low social position effect (model 3). Models 2 and 4 add an interaction term, suggesting the effect of the pupil-teacher ratio is not equal across levels of enrollment. Model 2 is visualized in figure 4.5, suggesting that the pupil-teacher ratio becomes relevant at higher levels of pre-primary enrollment.

Figure 4.6 Average marginal effects of attitudes towards housewives on the main effect of motherhood and the effect of being in low and high social positions



Note: Marginal effects are based on table 4.2, column a (left pane), column b (middle pane), and column c (right pane). The 95 percent confidence intervals are presented. Country positions represent the binary association between attitudes towards housewives and the motherhood and social position effects.

Finally, the *mumpreneurship* thesis predicts a larger motherhood effect for women in high social positions in countries with more negative attitudes towards housewives or working mothers. As table 4.2 shows, unfavorable attitudes towards housewives are associated with more negative motherhood effects for women in low social position (-.015, sig. p<.1; column b) and more positive effects for women in high social positions (.0136, sig. p<.1; column c). These effects are not significant when controlling for per capita GDP in models e and f, but the effect sizes are unaffected. Figure 4.6 shows a clear association between negative attitudes towards housewives and the effect of being in a high social position group (right pane) as well as weaker associations for the main effect (left pane) and low social position effect (right pane). When adding stigma against working mothers and an interaction term between the two attitudinal indicators as control variables in table 4.3 (models 5 through 8), the association with the more negative effect of being in a low social position is replicated, whereas the effect on the CPM of high social position is halved.

4.5 Conclusions and discussion

In this chapter, I set out to test the *mumpreneurship* and *disadvantaged worker* theses on a sample of 23 high- and middle-income countries. I asked how women's social position affects the motherhood effect, as well as how a country level contexts can explain the size and direction of the social position effect. After exploring patterns of the motherhood effects on self-employment by women's social position, I posit that the two theories should be conceived of as explaining the behavior of different groups, rather than as mutually exclusive views on a one-dimensional scale of social position. Two countries clearly conform to patterns expected under the *disadvantaged worker* thesis (Belarus and the USA), whereas I perfectly confirm the incidence patterns expected under the *mumpreneurship* thesis in four countries (Dominican Republic, Mexico, Romania, and Zambia). Both high and low social position women experience larger motherhood effects in Iran; motherhood effects in Brazil, France, Spain, and Vietnam are more negative for both the high and low social position groups compared to women in medium social positions. Thus, the analysis suggests that both *mumpreneurship* and *disadvantaged worker* configurations, and different combinations thereof, occur in practice. A four-category classification, which allows for one group being pulled into self-employed as another is simultaneously pushed into it, would be more apt than viewing the *mumpreneurship* and *disadvantaged worker* theses *(*hypotheses 1a and 1b) as competing.

Results indicating both that there is cross-country variation in the moderating effect of social positon on the motherhood effect on self-employment and that neither the *mumpreneurship* nor the *disadvantaged worker* theses can explain the country patterns,

prompt further exploration of the country contexts in which the low or high social position effects become more salient. I examine country level associations between the size of the motherhood and social position effects and several policy and attitudinal work-family measures. Contrary to expectations, no associations were found between any of the motherhood effects and the work-family policy measures based on time-splitting strategies (H2a). Findings indicate that work-family policies related to the outsourcing of care work, are associated with motherhood and social position effects on self-employment (H2b). There is tentative evidence to suggest that the motherhood premium is larger for women in medium and high social positions compared to low social positions in countries with more pupils per teacher in pre-primary education. Finally, the preference-based *mumpreneurship* thesis' premise that the stigmatization of either housewives or working mothers would be associated with larger motherhood premiums for the high social position group, is confirmed but only with regard to housewives (H3a). Results indicate that Bjuggren and Henrekson's (2018) results for Sweden hold true in a cross-country setting and that self-employment does effectively function as a role-reconciliation strategy in countries where full-time homemaking is generally looked down upon.

This study has a number of limitations and its results warrant a cautious interpretation. First, these results are cross-sectional in nature and lack individual level measures of attitudes or timing of entry into motherhood and self-employment statuses. I thus do not model whether entry into self-employment occurred *because* of childcare related reasons; but rather point out which patterns exist in the effect of motherhood and its relative size by social position. These results should be interpreted as descriptive. Second, the limited number of countries in the study mean that country-level control variables were added merely as sensitivity checks to the bivariate regressions. Finally, these sensitivity checks indicate that the effect of the pupil-teacher ratio appears to more accurately explain social position effects in countries with high enrollment in pre-primary education than at lower enrollment levels.

What this study has attempted to do, however, is expand our analysis of motherhood effects on self-employment beyond the often studied Anglo-Saxon and Western European countries. I study the relation between motherhood status and social position in a larger sample context, testing the two largest theories regarding the motherhood effect on self-employment in a single study. The individual level findings propose four clusters of countries to contrast in future research into patterns of motherhood effects. Country-level analyses indicate that more negative attitudes towards housewives are associated with larger motherhood premiums for women in high social positions. Larger class sizes in pre-primary education are associated with larger motherhood effects, particularly for the medium and high social position groups.

4.6 Appendices

Table 4.4 Description of dataset

Variable description	Measurement	Source
Class of Worker	0 = not in paid employment; 1 = in dependent employment; 2 = self-employed	IPUMS International
Motherhood status	Own child under the age of 15 in the household; 0 = No, 1 = Yes	IPUMS International
Social position	For lower-middle-income countries: 0 = low (less than primary), 1 = middle (primary or lower secondary completed), 2 = high (upper secondary education or more)	IPUMS International, own calculation
	For upper-middle-income countries: 0 =low (primary or less), 1 = middle (secondary), 2 = high (some tertiary or university)	
	For high-income-countries: 0 = low (secondary or less), 1 = middle (some tertiary) 2 = high (university completed)	
Age and age squared	age, mean centered	IPUMS International
Single	0 = married; 1 = not married	IPUMS International
Living in rural area	0 = urban area; 1= rural area	IPUMS International
Self-employed family member	Class of worker of spouse or at least one parent is self-employed; 0 = No, 1 = Yes	IPUMS International, own calculation
Spouse in higher social position	0 = spouse in same social position (if applicable); 1 = spouse in higher social position	IPUMS International, own calculation
Spouse in lower social position	0 = spouse in same social position (if applicable); 1 = spouse in lower social position	IPUMS International, own calculation
Part-time work	Part-time employment as a share of all female employment (Ø22.57, σ8.32)	World Economic Forum Global Gender Gap Report 2014
Maternity leave	National statutory number of days of paid maternity leave (Ø101, σ40)	ILO TRAVAIL
Childcare enrollment	Country enrollment rate in 0-3 childcare institutions (Ø13.48, σ14.25)	UNESCO UIS Statistics
Pre-primary enrollment	Country enrollment rate in pre-primary education (Ø70.55, σ33.06)	UNESCO UIS Statistics
Childcare expenditure	Country expenditure on pre-primary as a percentage of government expenditure on education (%) (Ø7.96, σ6.32). Available for 22 countries.	UNESCO UIS Statistics
Pupil-teacher ratio	Country average pupil-teacher ratio in pre-primary education (headcount basis) (Ø16.98, σ7). Available for 22 countries	UNESCO UIS Statistics
Stigma against working mothers	Country mean response to statement “when a mother works for pay, children suffer” from 0 (agree) to 3 (disagree); reversed (Ø2.54, σ.28). Available for 18 countries.	European values survey wave 4; world values survey wave 5 or 6
Stigma against housewives	Country mean response to statement “being a housewife is just as fulfilling as working for pay “ from 0 (agree) to 3 (disagree) (Ø2.28, σ.37). Available for 18 countries.	European values survey wave 4; world values survey wave 5 or 6
Per capita GDP	Per capita GDP in 2009 (current US$) divided by 1000	World Bank

Table 4.5 Sample sizes by class of worker and motherhood status

	Self-employed		Employee		Non-employed		Total
	non-mother	mother	non-mother	mother	non-mother	mother	
Armenia	249	115	15,867	6,607	22,255	15,808	60,901
Belarus	2,907	1,961	117,867	68,105	36,150	17,212	244,202
Botswana	1,022	1,207	11,356	8,713	10,900	7,710	40,908
Brazil	61,030	57,331	337,939	270,740	277,054	275,991	1,280,085
Canada	7,410	5,540	114,151	57,207	30,257	19,943	234,508
Costa Rica	4,146	3,938	22,562	16,562	32,289	35,933	115,430
Dominican Republic	8,505	10,419	34,386	36,523	66,073	67,168	223,074
Ecuador	18,405	25,870	49,932	51,671	77,439	106,254	329,571
France	18,816	16,758	327,878	243,947	123,899	59,430	790,728
Ghana	80,720	127,806	35,385	22,004	93,958	40,301	400,174
Hungary	3,900	1,886	51,255	21,738	21,976	14,803	115,558
India	1,760	1,586	4,802	4,396	41,908	48,793	103,245
Iran	3,790	3,051	17,724	13,885	187,176	192,549	418,175
Ireland	2,530	2,294	42,626	26,904	26,077	17,142	117,573
Mexico	64,937	84,020	184,986	167,967	440,138	676,089	1,618,137
Panama	2,583	2,789	19,281	16,141	18,298	24,118	83,210
Portugal	6,244	4,890	45,196	33,976	23,706	8,149	122,161
Puerto Rico	162	85	2,277	1,639	2,388	1,277	7,828
Romania	6,746	3,207	163,375	83,891	117,691	58,169	433,079
Spain	40,717	25,705	319,349	171,633	159,968	36,541	753,913
United States	19,552	14,454	305,573	176,672	107,944	81,320	705,515
Vietnam	91,949	122,076	167,466	149,381	171,018	113,663	815,553
Zambia	5,808	13,437	8,177	11,351	52,638	77,173	168,584
Total	479,202	505,111	2,569,250	1,491,813	2,176,835	1,959,901	9,182,112

Chapter 5

Motherhood Effects on Wages

A version of this chapter has been submitted for publication by Besamusca, J., Steinmetz, S., & Tijdens, K.

Abstract

This chapter studies how women's social position affects the size of the motherhood wage penalty across 13 high- and middle-income countries. Using a unique online volunteer survey, we test three competing theories that predict larger penalties for mothers in high, medium, and low social positions based on their earnings potential, time related work-family conflict, and labor market disadvantage. Results indicate that women in the lowest social positions pay the largest penalties, and that the disadvantage of low social position mothers is substantially larger in countries with greater income inequality and where enrollment in formal childcare institutions is lower.

5.1 Introduction

In societies around the world, motherhood has been intrinsically linked to caregiving (Barrientos & Kabeer, 2004). Whereas a non-negligible share of women still withdraw from paid labor after childbirth, the majority of mothers today retain some attachment to formal or informal labor markets (Gornick Meyers, & Ross, 1997; Goldin, 2014; Besamusca et al., 2015). That continued commitment to paid labor, however, has been hypothesized to be different from that of childless women and to penalize mothers for time spent on care responsibilities (c.f. Gornick & Meyers, 2004; Steiber & Haas, 2012). Numerous studies have presented evidence of American and Western European mothers' lower wages compared to their childless peers (c.f. Budig & England, 2001; Aisenbrey, Evertsson, & Grunow, 2009). A body of research has furthermore linked these wage penalties to the incompatibility of paid work and care, troublesome re-entry after career breaks, and mothers either choosing or being relegated to different, lower paid jobs than non-mothers (Lundberg & Rose, 2000; Phipps, Burton, & Lethbridge, 2001; Waldfogel, 1998).

Such evidence on the sources of the motherhood wage penalty has brought new considerations to the fore. After all, if mothers are disadvantaged largely through a weaker labor market position, their social position is likely to create intersectionalities (Choo & Ferree, 2010; Collins, 2015; Hegewisch & Gornick, 2011). Research, then, must take into account not only motherhood status, but also actors' social positions (Mandel, 2011; Milkman, 2016). So far, there is little academic agreement on neither the dynamics of these intersectionalities, nor the institutional contexts that reduce or increase differences between mothers in different social positions. Three competing theories have been advanced as to which group of women should be expected to suffer the largest penalties (c.f. Anderson, Binder, & Krause, 2002, 2003; Budig & Hodges, 2010, 2014; England et al., 2016). The *foregone career* hypothesis, which is rooted in human capital theory, argues that women in a high social position stand to gain the most from a career, and thus have most to lose (England et al., 2016; Wilde, Batchelder, & Elwood, 2010). The *time incompatibility* thesis assumes that paid labor and care-work place competing time demands on mothers. It proposes that penalties are the heaviest for mothers in a medium social position, because these mothers predominantly hold white-collar jobs that require their presence in the office without providing sufficient resources to outsource childcare (Anderson, Binder, & Krause, 2003). The *disadvantaged worker* theory expects the largest penalties to fall on mothers in the lowest social position, who are least able to deflect the wage effects of motherhood because of their weaker labor market position (Budig & Hodges, 2010; Nizalova, Sliusarenko, & Shpak, 2016).

Despite theoretical insights that intersectionalities of motherhood and social position may function differently across social contexts, research into the uneven effects of

motherhood on wages has so far focused on the United States and a small number of other highly industrialized countries (Choo, Crenshaw, & McCall, 2013; Hancock, 2007). Moreover, the majority of our current knowledge stems from single-country studies (England et al., 2016; Hegewisch & Gornick, 2011; Napari, 2010; Nizalova, Sliusarenko, & Shpak, 2016). Two of the rare comparative studies found cross-national differences for both the size of the social position effect and the most penalized group, raising the question of how social contexts affect the uneven distribution of the motherhood wage penalty (Halldén, Levanon, & Kircheli-Katz, 2016; Todd, 2001).

In this chapter, we aim to expand current knowledge by testing how women's social position affects the size of the motherhood wage penalty across much more diverse country contexts. In order to do so, we use the pooled data of the WageIndicator continuous online volunteer survey from 2012–15 (Tijdens & Osse; www.wageindicator.org). Although the dataset, as a non-probability sample, requires extensive weighting procedures, it contains a rare combination of detailed information on women's hourly wages, occupations, and a range of other work-related characteristics from a single multi-country survey. It offers a unique opportunity to study 13 high- and middle-income countries that have been under-researched in comparative designs and that differ substantially on the country-level institutions of interest.

Our study addresses two research questions. First, does women's social position affect the size of the motherhood penalty they experience; and if so, which group of mothers suffers the largest penalties? Second, does the size of the social position effect differ across countries? In Section 5.2, we examine the theoretical mechanisms that have previously been found to affect wage penalties of women in different social positions. Drawing on the three theories regarding the relative advantage or disadvantage of low, medium, and high social position mothers, we hypothesize which group can be expected to suffer the largest motherhood penalties and whether similar effects can be expected across countries. Section 5.3 outlines our methodological approach and in Section 5.4, we test the *foregone career*, *time incompatibility*, and *disadvantaged worker* hypotheses on the individual and country level. In Section 5.5 we draw conclusions and discuss avenues for further research.

5.2 The Motherhood Wage Penalty

5.2.1 The motherhood wage penalty and social position

Our study is founded on the assumption that women pay a price for motherhood (for an overview see Steiber & Haas, 2012). In this chapter, we focus on the effects of motherhood on wages, which we refer to as the motherhood penalty. We therefore observe only a subgroup of women: those who perform paid work. We recognize that both employment and

fertility decisions are complex social processes. The theorization of such selection processes, however, is outside the scope of this study (for an overview of selectivity, see for example Begall, Mills, & Ganzeboom, 2015; Brewster & Rindfuss, 2000; Hegewisch & Gornick, 2011; Mandel & Semyonov, 2005). We gratefully profit from previous work on such processes in our research design and focus on working women alone in order to explore intersectionalities of motherhood and social positions in earned wages.

The motherhood wage penalty has been studied in a range of industrialized countries and a handful of developing nations, and in a few cases from a comparative perspective (c.f. Grunow, Hofmeister, & Buchholz, 2006; Gangl & Ziefle, 2009; Misra, Budig, & Boeckmann, 2011). Studies found a 3% or 4% wage penalty for the first child and up to a 12% penalty for higher-order births among non-Hispanic white women in the United States (Budig & England, 2001; Waldfogel, 1997). Aisenbrey, Evertsson, and Grunow (2009) confirmed the existence of motherhood penalties in Germany, Sweden, and the USA. Other studies found motherhood penalties in the UK (Gangl & Ziefle, 2009), Spain (Molina & Montuenga, 2009), and Canada (Phipps, Burton, & Lethbridge, 2001). Budig, Misra, and Boeckmann (2012) found motherhood penalties in 16 of 22 countries in the Luxembourg Income Study, including penalties ranging from 10% to 18% in the Czech Republic, Hungary, Poland, Russia, and Slovakia. Nizalova, Sliusarenko, and Shpak (2016) found a 19% motherhood penalty for Ukrainian women. Adair et al. (2002) showed that Filipino mothers experienced lower wage growth than non-mothers in the period from 1983 to 1991; Piras and Ripani (2005) found a motherhood penalty in Peru and Gamboa and Zuluaga (2013) in Colombia. Whereas several studies have admittedly found diverging results (c.f. Albrecht et al., 1999; Datta Gupta & Smith, 2002; Piras & Ripani, 2005), the disadvantage of mothers versus non-mothers has started to reach a state of consensus. *We thus expect a motherhood penalty on wages to exist in our broad sample of countries (H1).*

Previous studies have noted that, in many countries, a large share of the motherhood penalty stems from the different labor market allocation of mothers and non-mothers (c.f. England, 2005; Goldin, 2014; Steiber & Haas, 2012; Waldfogel, 1998). For instance, mothers may lack access to segments of the labor market, women who intend to have children may self-select into jobs that are more family-friendly, or may adapt, or be forced to adapt, to motherhood by prioritizing the reconciliation of work and family responsibilities (Albrecht et al., 1999; Baum, 2002). Previous research has found that mothers are strongly penalized for taking employment breaks (Aisenbrey, Evertsson, & Grunow, 2009; Baum, 2002; Lundberg & Rose, 2000; Wetzels & Tijdens, 2002), reducing working hours (Bardasi & Gornick, 2008; Budig, Misra, & Boeckmann, 2012; IBD, 2008; López Bóo, Madrigal, & Pagés, 2010; Matteazzi, Pailhé, & Solaz, 2014), and being employed in more feminized industries and occupations

(Adair et al., 2002; Casal & Barham, 2013; England, 2005; Glauber, 2011; Hook & Pettit, 2015; Orbeta, 2005).

Whereas the abovementioned findings provide valuable insights into the sources of the motherhood penalty, they also call into question whether all women are equally affected by starting a family. Neither the assumption that all sub-groups of mothers have the same propensity to, for example, interrupt their careers or work part-time, nor the assumption that they would all face equivalent repercussions from such decisions, seem intuitively tenable. Indeed, scholars who have attempted to distinguish between women in different social positions concluded that mothers' relative disadvantage varies by class (Casal & Barham, 2013), educational attainment (Anderson, Binder, & Krause, 2002; Nizalova, Sliusarenko, & Shpak, 2013; Todd, 2001), skill level (Anderson, Binder, & Krause, 2003; England et al., 2016; Halldén, Levanon, & Kricheli-Katz, 2016; Wilde, Batchelder, & Elwood, 2010), and wage quintile (Budig & Hodges, 2010, 2014; England et al., 2016; Napari, 2010; Orbeta, 2005).

The abovementioned studies found contradictory results. In the most-studied country, the USA, researchers found larger penalties for the group of mothers in the highest social position (Anderson, Binder, & Krause, 2002; England et al., 2016; Wilde, Batchelder, & Elwood, 2010), the lowest social position (Budig & Hodges, 2010, 2014), and even the medium social position (Anderson, Binder, & Krause, 2003; Todd, 2001). These studies, admittedly, measured social position in many different ways, in different years, and using differently delimited samples. We argue, however, that both this study and the abovementioned work, in essence, all endeavor to distinguish between women who are more socio-economically advantaged or disadvantaged.[1] In this chapter, we relate the concept of social position to an occupation-based index of socio-economic class, which most accurately measures our theoretical mechanisms. We do draw on the abovementioned studies' findings and arguments for predicting larger penalties for low, medium, or high social position mothers in the following sections.

5.2.2 Individual-level effects of social position

The *foregone career* hypothesis is grounded in human capital theory and revolves around mothers' potential or foregone career prospects. It assumes that workers achieve a certain level of wage growth over the course of their careers and views motherhood as a disruptive event (Albrecht et al., 1999; Becker, 1964; Mincer & Polachek, 1974). Its proponents point out that women in higher social positions have much steeper wage curves and are therefore more likely to experience larger motherhood penalties, simply because they have more to lose (Anderson, Binder, & Krause, 2002; Wilde, Batchelder, & Ellwood, 2010). High social position women furthermore tend to be employed in higher skilled jobs that are associated with more perceived work effort and commitment. The effort requirement makes these

occupations more difficult to combine with care responsibilities and thus affects highly positioned mothers above and beyond the direct loss of tenure from their (often rather brief) maternity leave (Wilde, Batchelder, & Elwood, 2010). By extension, mothers in lower social positions, whose wage curves are flatter, are then less disadvantaged by motherhood; their wages would also not have been expected to grow much in the absence of a child. Both Anderson, Binder, and Krause (2002) and England et al. (2016) found larger penalties for women in higher social positions in the USA, as did Napari (2010) in Finland. Thus, according to the *foregone career hypothesis, social position is positively associated with the size of the motherhood penalty. Mothers in high social positions, whose human capital endowments and labor market allocation prepared them for a promising career, will suffer larger child penalties compared to mothers in medium and low social positions (H2)*.

A second strand of research argues that mothers will pay larger penalties depending on their ability to reconcile the competing time demands of work and care responsibilities. According to the *time incompatibility thesis*, alleviating one or the other, through flexible working hours or care arrangements, will reduce the motherhood penalty (Anderson, Binder, & Krause, 2003; Gornick & Meyers, 2004; Hook & Pettit, 2016). Following this reasoning, Anderson, Binder, and Krause (2003) posit that the motherhood penalty should be largest for women whose presence in the office is required during standard working hours, but who lack the financial resources to hire paid help. Mothers in a high social position, whose education allows them access to jobs as managers and professionals, are both better able to pay for childcare and have relatively high autonomy over their own work hours; they are thus best equipped to combine work and care (c.f. Golden, 2001; Pagnan, Lero, & MacDermid Wadsworth, 2011). At the other end of the spectrum, Presser (2003) shows how low social position mothers of young children work non-overlapping shifts with their partners, with 37% indicating childcare needs as their primary motivation for working those hours. Such shift-splitting strategies, in which parents attempt to work non-overlapping hours to provide cheaper or culturally preferred homecare for children, can help reconcile paid work and care for parents with limited access to childcare facilities (Bünning & Polmann-Schult, 2016; Pagnan, Lero, & MacDermid Wadsworth, 2011; Presser, 2003; Täht & Mills, 2012). Medium social position women, who are more likely to have medium skilled jobs, for example in offices, are caught in the middle. The jobs to which they have access yield neither the scheduling autonomy and resources of the higher social position group, nor the off-shifting opportunities of the lower social position group (Anderson, Binder, & Krause 2003). Thus, the *time incompatibility* theory predicts the largest conflict for the medium social position group, who are penalized for childcare-related absences and are often forced to downwardly adjust hours, work effort, or workplace to reconcile work and care (Hattery, 2001). The *time incompatibility hypothesis would thus lead us to expect an inverse U-shaped relation between*

social position and the size of the motherhood penalty. The medium social position group of women will then suffer heavier motherhood penalties than their low and high social position peers, because their jobs are the least compatible with caregiving (H3).

Finally, child penalties have been theorized to be dependent on women's bargaining power in the workplace (Halldén, Levanon, & Kricheli-Katz, 2016; Milkman, 2016; Todd, 2001). Like the foregone career hypothesis, the *disadvantaged worker* thesis sees motherhood in conflict with the ideal worker concept – a conflict that employers would rather avoid. Mothers who are better able to negotiate working conditions and care arrangements are partially shielded from the negative consequences of care responsibilities; those who cannot, experience the full impact of shifting priorities and employer attitudes regarding working mothers (Aisenbrey, Evertsson, & Grunow, 2009; Budig & Hodges, 2010, 2014). A superior bargaining position provides an edge to more highly positioned mothers, who are more costly to replace for employers because of earlier investments and the non-routine nature of their jobs (Budig & Hodges, 2010; Di Stasio, 2014). Low social position women, on the contrary, are more likely to work in low-wage occupations, lack access to benefits, enjoy weaker job protection, and are more easily replaced (Kalleberg, Reskin, & Hudson, 2000; Milkman, 2016). Furthermore, as low social position mothers are less able to afford institutionalized childcare, their care arrangements are more haphazard and prone to time gaps in caregiving, making it more difficult to retain jobs and impeding the acquisition of tenure (Budig & Hodges, 2010; Forry & Hofferth, 2011; Usdansky & Wolf, 2008). All these characteristics add to low social position workers' disadvantage, making them less able to negotiate arrangements to combine care with paid work, and more likely to be let go when conflicts do occur (Mandel, 2011; Matteazzi, Pailhé, & Solaz, 2014). *The disadvantaged worker hypothesis thus predicts a negative relation between social position and the size of the motherhood penalty. It would lead us to expect that low social position women will suffer heavier motherhood penalties than women in medium and high social positions because their disadvantaged labor market position makes it more difficult to bargain or pay for care arrangements that will let them retain jobs (H4).*

5.2.3 Country differences in the effect of social position

In the previous section, we outlined three hypotheses with regard to the way that mothers in different social positions interact with societal and labor market institutions. However, as scholars of stratification have convincingly proven, inequality structures are not the same across countries (Grusky, 2014; Hout & DiPrete, 2006). Differences between women in higher and lower social positions regarding their expected wage curves, access to childcare, and bargaining power should therefore be expected to differ between countries as well. As the rare comparative studies in highly industrialized countries stress, US results may not

necessarily be replicated in a broader set of countries (Halldén, Levanon, & Kircheli-Katz, 2016; Todd, 2001). In the rest of this section, we therefore elaborate on the extent to which the effects of social position as formulated in the *foregone career, time incompatibility, and disadvantaged worker* hypotheses should be expected to vary across countries.

First, the basic premise of the *foregone career* hypothesis is that women in higher social positions have more to lose from prioritizing care over career. Yet the gap between the wages of low and high position women is at least co-dependent on the degree of earnings inequality in a country (DiPrete, 2005; Mandel & Semyonov, 2005). Although higher returns to education increase the pay levels of childless women in high social positions, they also increase the potential for foregone gains (Blau & Kahn, 1992). While Budig, Misra, and Boeckmann (2016) found no effect of economic inequality on the size of the overall motherhood wage penalty in 22 OECD countries, the *foregone career* hypothesis suggests that such results might be found when differentiating between mothers in different social positions. As such, *the foregone career hypothesis would lead us to expect a larger penalty for high social position mothers in countries with higher income inequality (H5).*

Second, the extent to which medium social position mothers suffer from inflexible work schedules and limited resources depends on whether children are ordinarily cared for in formal care institutions. Comparative studies of European countries, Australia, and North America have found evidence that higher childcare enrollment, especially of children under age three, is associated with lower motherhood penalties (Abendroth, Huffman, & Treas, 2014; Budig, Misra, & Boeckmann, 2016; Gornick & Meyers, 2004). Bünning and Pollmann-Schult (2016) show that in European countries with superior availability and accessibility of formal childcare, parents are less likely to work odd hours because of the diminished conflict between the 9 to 5 work schedule and care responsibilities. Since these formal care arrangements are less likely to break down unexpectedly and reduce parents' reliance on a patchwork of childcare options, they could also indirectly improve the ability of medium social position mothers to retain white-collar jobs (Hattery, 2001; Pagnan, Lero, & MacDermid Wadsworth, 2011; Täht & Mills, 2012). *The time incompatibility hypothesis would thus lead us to expect that the motherhood penalties for medium social position women are smaller in countries where childcare enrollment is higher (H6).*

Finally, the structural labor market disadvantage of low and medium social position groups could be less extreme in countries where these employees negotiate collectively. High social position mothers may be able to hold on to jobs even in the absence of strong labor market institutions, but low social position mothers less so (Gangl, 2005). Mothers in a low or medium social position can thus be expected to benefit more from collective bargaining, which can offer both union-backed wage demands and solutions that are tailored to specific workplaces or industries (Blau & Kahn, 1992; Heery, 2006; Williamson & Baird,

2014). Dickens (2000) and Heery (2006) point toward the effectiveness of centralized, multi-employer bargaining in addressing caregivers' concerns in countries with stronger traditions of constructive industrial relations, although other authors have warned that labor unions may more actively represent the agenda of their members than those of underrepresented or marginalized groups (Milkman, 2016; Pettit & Hook, 2009) *Thus, the disadvantaged worker hypothesis would lead us to expect that penalties for the low and medium social position groups should be smaller in countries where more workers are covered by collective bargaining (H7).*

5.3 Data and Methods

5.3.1 Data

We aim to test whether social position is associated with the size of the motherhood wage penalty across a broad range of countries. In order to do so, we require a dataset that contains identical data on hourly wages, working times, and motherhood status for a diverse set of countries. Although several representative multi-country surveys and data harmonization projects have advanced to include more countries, they still lack information on either *hourly* wages (IPUMS, ESS, LIS), the geographical scope outside Europe (EU SILC, ESS), or detailed data on working hours and schedules that are measured identically in all countries (LIS, IPUMS, ISSP). For these reasons, we rely on data from the online WageIndicator volunteer survey, of which a detailed description is included in the appendix (table 5.5).

The WageIndicator dataset stems from a continuous online volunteer survey run by the WageIndicator Foundation in almost 90 countries. The websites attract large numbers of visitors (2017: 34 million unique visitors). Teasers invite visitors to complete a web survey with a lottery incentive. Respondents complete the survey in their own language, answering detailed questions about their education, jobs, and remuneration. For this study, we include data from 13 countries ranging from lower-middle-income countries (Indonesia, Ukraine) and upper-middle-income countries (Argentina, Brazil, Belarus, Kazakhstan, Russia, South Africa), to high-income countries (Belgium, Czech Republic, Germany, the Netherlands, Slovakia). We focus on women aged 15 to 54 who are employed for at least one hour per week. We pool the data of the annual releases that were collected between 2012 and 2015, yielding a dataset that contains 147,142 observations at the individual level. We drop 10,849 respondents who are still in full-time education. Using listwise deletion, we then restrict the sample to 71,874 respondents with valid data on all dependent and independent variables. The drop in respondents is mainly due to missing wage data (70,346 respondents either skipped the question or dropped out of the survey at this point). We do not impute missing wages because of concerns that this might lead to an overestimation of the motherhood

penalty (c.f. De Waal, Pannekoek, & Scholtus, 2011). Finally, we delete wages of the top and the bottom 2% earners in each country to avoid outlier effects. This results in a pooled cross-sectional sample of 70,436 individual-level observations, ranging from 1,184 observations in the Czech Republic to 12,834 in the Netherlands.

Previous research using this dataset has shown that the survey respondents are on average younger and more highly educated than the overall population, reflecting the general profile of Internet users (Steinmetz & Tijdens, 2009; Steinmetz et al., 2013). As we replicate previous research about the motherhood penalty in selecting only women under the age of 55, the most underrepresented group in web-based surveys is excluded from our analysis by design. For the respondents included in the analytical sample, we construct population weights using weighted data from the Integrated Public Use Microdata Series – IPUMS International (Argentina, Brazil, Belarus, Indonesia, and Ukraine) and the Luxembourg Income Study (Belgium, Czech Republic, Germany, the Netherlands, Russia, Slovakia, and South Africa) for three age and educational groups. For Kazakhstan, we rely on the ILO estimates (ILO, 2011) and, as only age is available, we calculate weights for three age groups.

A second potential source of bias stems from mothers' and childless women's different propensities to enter the labor market, which has been shown to be correlated with earnings potentials (Harkness and Waldfogel, 1999; Heckman, 1979). In order to adjust our estimates to take account of the hypothetical wages of the non-employed women (i.e. the wages that would have been earned, had all women elected to engage in paid labor), we apply a Heckman selection (Heckman, 1979) using the abovementioned IPUMS, LIS, and ILO EAPEP datasets (since the WageIndicator sample contains only working women). For this procedure, we run a probit regression on the probability of being employed, measuring selectivity into employment for mothers and childless women by age, education, and marital status for each country separately. The probit model returns an inverse Mills ratio, which is included as a covariate (lambda) in the analyses to correct for potential self-selection into paid labor (Harkness & Waldfogel, 1999; Korenman & Neumark, 1990; Nizalova, Sliusarenko, & Shpak, 2016).

5.3.2 Operationalization

Our dependent variable is log net hourly wages, excluding allowances or bonuses, and is measured in purchasing power parity. While the questionnaire does ask respondents for both gross wages and net wages on their last pay check, about 30% fewer respondents completed the field for gross wages than for net wages and annual incomes are not measured. We thus consider net wages the more reliable measure. In order to isolate the effect of having a child on earnings we use hourly wages, which are more independent of work effort than monthly

or annual incomes. As each person is observed only once, the data do not allow us to follow individuals over time and we measure wage levels, rather than wage growth.

We have two main independent variables. The first measures the motherhood penalty and refers to the binary variable of having a child or not (ref. no child). The second refers to the social position of respondents, which is operationalized using the European Socio-Economic Groups (ESeG_2014) classification (Meron et. al., 2014). The ESeG_2014 is a multidimensional social classification tool that maps two-digit ISCO codes and status as a dependent or self-employed worker to 31 socio-economic groups of employed people. We recode the 31 ESeG groups into three social position groups differentiating between low social position (ref.; skilled industrial employees and less skilled workers), medium social position (technicians, associate professionals, small entrepreneurs, clerks, and skilled service employees), and high social position (managers and professionals).

In order to test the mechanisms outlined in the hypotheses, we include relevant 'hypotheses-specific' individual and country level explanatory variables. For the *foregone career* hypothesis at the individual level, we include an indicator whether women have received a promotion at their current employer. At the country level, we include the country's GINI coefficient in 2013 (World Bank). The 13 countries in this study have GINI coefficients ranging from 24.6 (Ukraine) to 63.4 (South Africa), as shown in table 5.1.

For the *time incompatibility* hypothesis, we include a dummy variable for women who regularly work evenings or nights *and* perform shift work. We include three dummies for working less than 12 hours per week, for working 12–32 hours, and for working over 55 hours. For mothers with young children, we include a dummy variable that takes the value of one when at least one of their children is enrolled in a daycare facility. At the country level, we include a variable for the share of children under the age of three who are enrolled in formal childcare institutions, regardless of the number of hours or source of financing (UNESCO). The 13 countries vary from less than 5% enrollment (South Africa, Czech Republic, and Slovakia) to around 60% (the Netherlands). Finally, for the *disadvantaged worker* hypothesis, we follow Visintin, Tijdens, and Van Klaveren (2015) in using the number of times women spent a period outside of paid labor as an indicator of their bargaining power. We also include a dummy for being a member of a labor union, and an indicator for being paid in cash as a proxy for informal work and the associated lack of job security. At the country level, we use data from the 5th edition of the ICTWSS dataset to include an indicator for the share of employees covered by collective agreements in 2013 (Visser, 2015). The countries vary from 14% (Indonesia) to 96% (Belgium).

Finally, in all models, we control for the year in which the survey was completed and several variables at the individual level that are commonly included in studies on the motherhood penalty: women's age (mean centered at 36 years of age) and age squared,

a 10-point ordinal scale for firm size (mean centered at companies with between 50 and 100 employees), the self-reported share of female employees in the firm, and four broad industries (commercial services as ref.). We do not include control variables for other macro level indicators, like the female employment rate or gender egalitarianism, as they are not the focus of this study and including them would require multiple new cross-level interactions terms.

Table 5.1 Country scores on country level variables

	Gini coefficient	Share of children under 3 years that is enrolled in formal childcare institutions	Share of total employees that is covered by collective bargaining agreements
Argentina	42.3	11	63.8
Belgium	28.5	39.2	96
Brazil	52.9	9	65
Belarus	27.7	19	95.6
Czech Republic	26.6	4	50.4
Germany	31.1	23.1	58.3
Indonesia	35.6	9	14
Kazakhstan	26.4	15	74.7
Netherlands	28.7	60.6	84.8
Russia	40.9	18	22.8
Slovakia	27.3	3	24.9
South Africa	63.4	0	32.6
Ukraine	24.6	16	45.9

Sources: World Bank, UNESCO, ICTWSS

5.3.3 Estimation strategy

We are interested in the effect of social position on the motherhood wage penalty, as well as the heterogeneity of this effect across countries. Therefore, we treat respondents as nested in the 13 countries and use multilevel modeling techniques to account for the clustered nature of the data. To test whether mothers' social position has an effect on the size of the motherhood penalty they experience, and whether the size of the social position effect differs across countries, we run three sets of hierarchical two-level random effects models. We take note of recent concerns that multilevel models with few higher level clusters might not yield the most efficient coefficients for country level effects and cross-level interactions (Bates et. al., 2015; Heisig, Schaeffer, & Giesecke, 2017; Stegmüller, 2013). Since the relatively small sample sizes in the dataset impair the efficient use of two-step regression models,

we follow the procedure proposed by Heisig, Schaeffer, and Giesecke (2017): we relax the usual assumption of hierarchical modelling that individual-level effects are equal across countries by adding random slopes to all level-1 control variables, thus allowing the effects of variables like age or weekly working hours to vary across countries. We apply non-parametric bootstrapping procedures to adjust the confidence intervals, yielding more conservative significance estimates than the regular results of the Stata xtmixed package.

In the first, descriptive set of regressions (figure 5.1), we split the sample along the social position groups and test the bivariate relation between women's wages and motherhood status, accounting only for women's age, selection into employment, and the year in which the survey was completed. We first estimate this effect for the entire sample. We then estimate country-specific effects by taking the sum of the grand mean effect, representing the mean estimate across countries, and the empirical Bayes' estimates, containing the country deviation from the grand mean effect. To avoid reporting too narrow confidence intervals, we take the sum of the variances around the two estimates for significance testing (Mason, Wong, & Entwisle, 1983; Snijders & Bosker 1994).

In the next stage (table 5.3), we use the complete sample to estimate the motherhood effect on women's wages, including all the above-mentioned control variables to test hypotheses 1–4. We subsequently introduce the dummies for medium and high social position, two interaction terms between the social position indicators and motherhood status, the individual-level explanatory variables, and the interaction of these variables with motherhood status and social position. Finally, we run a third set of regression analyses that add the country-level indicators to test hypotheses 5–7 (table 5.4). In order to measure the cross-country differences of the social position effect on the motherhood penalty, we include three-way interactions between the country-level indicators, motherhood, and social position variables. To aid the interpretation of the results, we plot the significant effects of the three-way interactions by showing the marginal effect of social position on the motherhood penalty at different levels of the country-level variables (figures 5.2 and 5.3). To avoid oversaturation and due to multicollinearity (GINI correlating at -.4 with the childcare and collective bargaining coverage variables, and the latter two at .6), we test these models separately and refrain from formulating a joint model.

Finally, we perform a number of robustness checks, which we report in the results section. We run the models on gross instead of net wages, drop one country from the sample at a time, run the analyses separately for the seven countries with the highest and the six with the lowest per capita GDP, and run the analyses for the raw motherhood penalties by controlling only for age, weights, and selectivity into employment. Results from the analyses measuring gross instead of net wages are included in the appendices.

5.4 Results

5.4.1 Motherhood penalties

Roughly half (53%) of the 70,436 women in the sample are mothers. Comparing mothers' characteristics to those of childless women in the pooled sample (table 5.2), we observe that the former are on average about nine years older, more likely to have taken a career break, less likely to work night shifts, and slightly more likely to be in the low and medium social position groups.

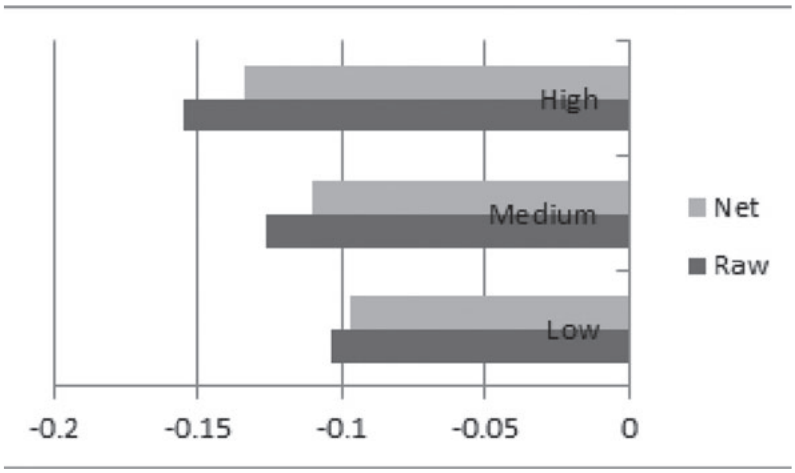
Table 5.2 Descriptive statistics childless women compared to mothers

	Non-mothers (N=33,272)		Mothers (N= 37,164)	
	Mean	Std dev	Mean	Std dev
Net hourly wage (median)	6.895	0.932	5.522	0.898
Age	30.343	8.162	39.621	8.494
Low social position	0.184	0.387	0.219	0.414
Medium social position	0.507	0.500	0.492	0.500
High social position	0.230	0.458	0.279	0.448
Had a career break	0.620	1.675	0.801	2.157
Percentage women in workplace (scale 1-5)	3.072	1.384	3.228	1.438
Contractual working hours	37.929	9.969	36.875	10.657
Promoted at current employer	0.243	0.429	0.264	0.441
Works evenings	0.228	0.419	0.186	0.389
Paid in cash	0.154	0.361	0.163	0.370

Sources: WageIndicator Global Dataset 2012-2015, country and person weights.

When splitting the sample by social position (see figure 5.1), we find a negative bivariate effect of motherhood on wages. This effect remains, regardless of social position, with or without control variables. Overall, the largest penalty (15%) is found for women in high social positions and the smallest for women in low social positions (10%). Penalties are reduced by about two percent after adding the individual-level control variables. Studying the country-specific estimates of the raw motherhood penalty (appendix, table 5.7), we find motherhood wage penalties for the medium social position group in eight countries, with non-significant results in Argentina, Belgium, Germany, Indonesia, and the Netherlands[2]. In the sample of women in low social positions, nine countries (Argentina, Belarus, Brazil, Czech Republic, Kazakhstan, Russia, Slovakia, South Africa, and Ukraine) show significant penalties; in the sample of women in high social positions, eight countries do (Argentina, Belarus, Czech Republic, Russia, Slovakia, South Africa, and Ukraine). A motherhood premium is found in the low and high social position samples from Indonesia.

Figure 5.1 Raw and net effect of children on wages for low, mid, and high social position women



Source: WageIndicator Database 2012-2015
Note: Raw motherhood penalty controlled for weights, selection into employment, age and age squared.
Note 2: Net motherhood penalty controlled for weights, selection into employment, age and age squared, sector, firm size, and share of women in the firm.

We furthermore find cross-country variation in the relative size of the motherhood penalty by social position: women in the lowest social position pay the largest motherhood penalty in Argentina, Belgium (n.s.), Kazakhstan, and South Africa; the motherhood penalty is largest for women in medium social positions in Brazil, Germany (n.s.), and Slovakia; finally, it is largest for women in the highest social position in Belarus, the Czech Republic, the Netherlands (n.s.), Russia, and Ukraine.

5.4.2 Social position and the motherhood wage penalty

Before studying the size of the social position effect on the motherhood penalty, we first establish whether the latter exists in our broad sample of countries including all social position groups (see table 5.3; for a table that includes the coefficients of all individual-level explanatory variables, see appendix V-II). Controlling for selection into employment and all other control variables outlined in the Section 5.3, we find a significant motherhood penalty of 11% (-.108, sig p<.001) (table 5.3, model 1). This is reduced to 9% (-.086, sig p<.001) when social position is taken into account (model 2). Highly positioned women earn on average 36% more than those in a low social position, whereas those in a medium social position earn 12% more. When interacting the motherhood and social position variables in model 3, we find a wage penalty of 11% (-.115, sig p<.01) for low social position mothers. In line with

findings from England et al. (2016), we find the motherhood penalty experienced by medium social position mothers is not significantly different from that of low social position mothers. However, the motherhood penalty for the high social position group, is 6% smaller (.062, sig p<.01). These results hold when controlling for the individual-level explanatory variables (model 4). They thus suggest mothers in low and medium social positions pay larger relative wage penalties. We stress here that this is a percentage gap compared to their childless peers. Because women in low and medium social positions earn lower wages than their high social position peers regardless of motherhood status, this cannot be interpreted to mean their absolute losses, expressed in dollar amounts, are also largest.

When strictly controlling for all individual-level variables though three-way interactions (model 5), penalties for mothers in medium (0.087, sig p<.05) and high social position (0.097, sig p<.1) are both significantly different from their low social position peers. The three-way interactions (see appendix V-II for coefficients), show that the larger motherhood penalty for women in low social positions is accompanied by a strong positive effect of having been promoted at their current firm (0.083, sig p<.001). This indicates both that mothers in low social positions effectively gain more from being promoted within the firm than their childless counterparts and that wage penalties are larger for mothers that are not, which confirms general expectations of the *disadvantaged worker* hypothesis. The interaction between promotions and motherhood is negative for the medium (0.079 sig p<.5) and high social position groups (0.127 sig p<.001), suggesting they have lower returns to promotion within a firm. Working less than 12 hours per week and working evening shifts are associated with larger penalties for mothers in medium social positions. Career breaks are associated with lower wages for women in high social positions, but not with larger penalties.

Table 5.3 Wage effects of motherhood and social position

	Model 1	Model 2	Model 3	Model 4	Model 5
Has (a) child(ren)	-0.108***	-0.086***	-0.115***	-0.124***	-0.190***
Medium social position		0.119***	0.161***	0.137***	0.132***
High social position		0.364***	0.343***	0.298***	0.299***
Child * medium social position			0.018	0.028	0.087*
Child * high social position			0.062***	0.062***	0.097†

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.
Note 1: Model 1 through 3 controlled for survey year, age, selectivity, industry, firm size, share of women in the firm.
Note 2: Model 4 controlled for model 3 controls and part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership.
Note 3: Model 5 controlled for model 3 controls and three-way interactions with social position, motherhood and model 4 controls.
*Note 4: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1*

We thus find larger penalties for the low and medium social position mothers than for the high social position mothers in the models that do not specifically test for the theoretical mechanisms (models 1-4) supporting the *time incompatibility* and *disadvantaged worker* hypotheses over the *foregone career* hypothesis. When the individual-level explanatory variables related to the three theories are included (model 5), mothers in low social positions pay the largest penalties, lending support to the *disadvantaged worker* hypothesis. Concurrently, the negative effects of working shorter hours, evening shifts, and being paid in cash, suggest that medium social position mothers whose actions take them out of 9 to 5 office jobs do pay a higher penalty, as the *time incompatibility theory* would suggest. Results that low social position mothers pay the largest penalties hold when dropping one country at a time, for the richest 7 and poorest 6 countries separately, and using gross instead of net wages (appendix, table 5.8).

5.4.3 Country differences

In table 5.4 we explore whether country differences in the social position effect can be explained by the *foregone career [model 1]*, *time incompatibility [model 2]*, and *disadvantaged worker [model 3]* theories. We subsequently include one of the country-level indicators and their three-way interaction with motherhood and social position to measure the effect of social position on the motherhood penalty across countries. We interpret the results as evidence of an association between the motherhood wage penalty and the macro level indicators, since the number of countries in the study severely limits our ability to include control variables. We continue to find substantial overall motherhood penalties when taking country differences into account, implying that a significant motherhood penalty exists in countries with mean values on the variables measuring inequality, childcare enrollment, and collective bargaining coverage. We replicate the results from the final model from Section 5.4.2, finding similar wage benefits for the high and medium social position group. Both the overall motherhood penalty and the effects of social position are similar in the three models of table 5.4.

To test whether more economic inequality is associated with larger motherhood penalties for the high social position group (hypothesis 5), we control for countries' GINI coefficients. We find no significant effect between having a child and the GINI coefficient. However, we find a significant positive effect on the three-way interaction with mothers in high social positions (.006 , sig p<.01) and a marginally significant effect for the medium social position group (.005, sig p<.1), suggesting that both medium and high social position women experience smaller child penalties than their low position peers in more unequal countries.

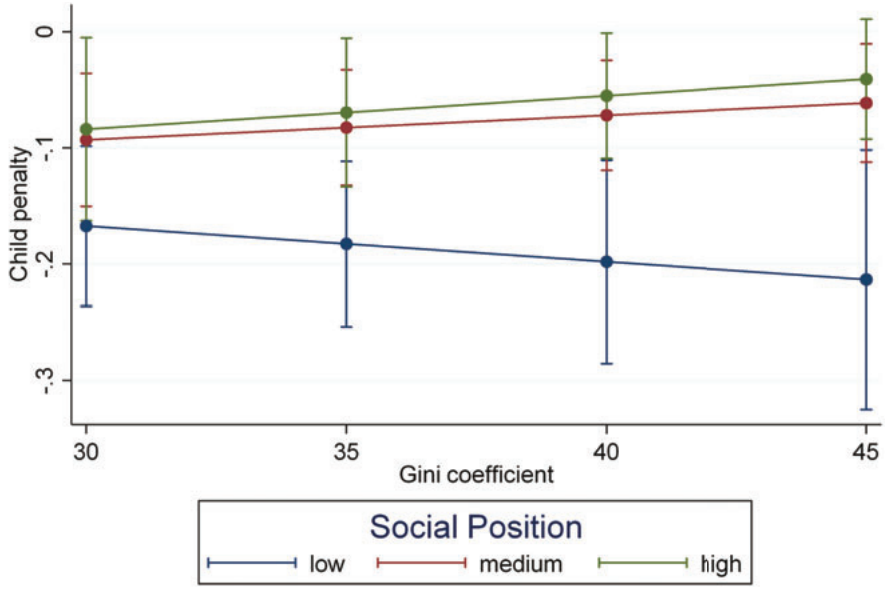
Table 5.4 Country variation in the effect of social position on the motherhood wage penalty

	Model 1	Model 2	Model 3
Has (a) child(ren)	-0.172***	-0.170***	-0.172***
Medium social position	0.128***	0.113***	0.120***
High social position	0.283***	0.260***	0.274***
Child * medium social position	0.088***	0.089***	0.096***
Child * high social position	0.093*	0.090†	0.099*
Gini coefficient	0.004		
Gini * medium social position	0.000		
Gini * high social position	0.004†		
Gini * child	-0.003		
Gini * child * medium social position	0.005†		
Gini * child * high social position	0.006**		
Child care - enrollment children under 3		0.021***	
Childcare * medium social position		-0.002†	
Childcare * high social position		-0.005*	
Childcare * child		0.001	
Childcare * child * medium social position		-0.002	
Childcare * child * high social position		-0.003*	
Collective bargaining coverage			0.009
Bargaining * medium social position			-0.001
Bargaining * high social position			-0.002*
Bargaining * child			0.001
Bargaining * child * medium social position			-0.001
Bargaining * child * high social position			-0.001

Source: WageIndicator Global Dataset 2012-2015, population weights. 13 Countries, n=70,436. Random intercept and all random slopes.
Note 1: Controlled for survey year, age, selectivity, industry, firm size , share of women in the firm, part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership, and three-way interactions with social position, motherhood and controls from model 5, table 5.2.
*Note 2: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1*

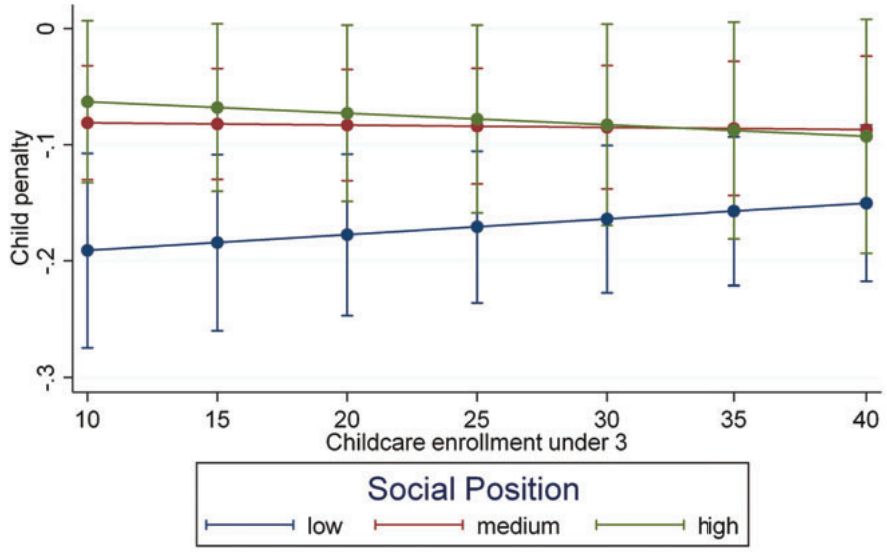
In figure 5.2, we plot the marginal effects of social position on the motherhood penalty, displaying the estimated size of the motherhood penalty (y axis) at different levels of inequality (x axis). The figure shows that low social position women have larger motherhood penalties than medium and high social position mothers. It also shows that the disadvantage of the low social position group is larger in less equal countries (at high values on the x-axis). Robustness checks show similar results for models run with minimal controls, excluding

Figure 5.2 Average marginal effects of social position on motherhood wage penalty at different levels of inequality



Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.

Figure 5.3 Average marginal effects of social position on the motherhood wage penalty at different levels of childcare enrollment



Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,346, population weights, random intercept and random slopes.

any particular country from the sample (not shown), or using gross wages (appendix, table 5.9), although effects are non-significant in the models using gross wages. The findings thus indicate that high and medium social position groups experience smaller motherhood penalties, and that this advantage is greater in less equal countries, which is inconsistent with the *foregone career* hypothesis (H5).

Model 2 measures whether higher enrollment in formal childcare institutions of children under three is associated with smaller motherhood penalties of the medium social position group (hypothesis 6). Here too, we find evidence of differences between social position groups (table 5.3, model 2). We find no overall effect of childcare enrollment on the size of the motherhood penalty, net of individual enrollment. The negative three-way interaction term for the high social group (-.003, sig p<.01), however, indicates that this group pays higher motherhood penalties in countries with higher childcare enrollment.

The interaction between childcare and the motherhood penalty is stronger, as are the two three-way interactions, when the Netherlands is dropped from the sample, but still leads to the same conclusions. Figure 5.3, indeed, shows a strong positive effect for low social position mothers and little effect for medium and high social position mothers. As such, model 2 indicates that low social position mothers pay smaller penalties than medium and highly positioned mothers in countries with higher childcare enrollment.

Finally, we test whether higher collective bargaining coverage is associated with a lower motherhood penalty for the low social position group (hypothesis 7). Here, we find no significant effects on the size of the social position effect (table 5.3, model 3). The direction of the effects indicates that wages are higher in countries with more extensive collective bargaining coverage (.009, n.s.), which is in line with expectations. The motherhood penalty for the low position group is smaller than for the other two groups in this model (-.001, n.s.). However, as these results are small and non-significant, we cannot confirm that bargaining coverage drives the cross-country results in penalties for low social position mothers. The results become significant when Indonesia, which has low collective bargaining coverage and a motherhood premium for the low social position group, is dropped from the sample, but not in any other case.

5.5 Conclusions

Examining the threefold relationship between wages, motherhood, and social position, we document a motherhood penalty on hourly wages of about 11% in our broad sample of countries after controlling for actors' observable characteristics (H1). We also confirm that the size of the motherhood penalty differs between women in different social positions. We test three theories related to actors' career potential, time conflicts, and bargaining

power to examine which group of women pays a higher penalty for becoming a mother. We find larger penalties for mothers in low social positions (19%) compared to those in medium (10%) and high (9%) social positions, thus providing support for the *disadvantaged worker* hypothesis (H4). We also find partial support for the *time incompatibility* theory in the evidence of larger penalties for medium social position mothers who adjust work patterns away from 9 to 5 office jobs (H3). Less evidence is found for the *foregone career* thesis, because penalties for taking career breaks are associated with being in a high social position, rather than motherhood (H2).

To test whether the effect of social position differ across countries, we also measure three country-level variables that are likely to make the *foregone career*, *time incompatibility*, or *disadvantaged worker* mechanism more salient. We find larger differences in the size of the motherhood penalty by social position group in more unequal countries, but do not find evidence to confirm that women with the most promising careers pay higher penalties in those countries (H5). On the contrary, inequality appears to exacerbate the disadvantage of low social position mothers. We find that more universal enrollment of children under age three does reduce the higher penalty for the lowest social position group, but not for the medium social position group, as expected based on the *time incompatibility* hypothesis (H6). Measuring collective bargaining as the share of workers in dependent employment who are covered by collective bargaining agreements (H7), we find small and non-significant effects.

We interpret these results as an indication that the size of the social position effect on the motherhood penalty is associated with social contexts, but stress that more in-depth research is needed to establish any kind of causality. For both childcare enrollment and collective bargaining, we expect more detailed indicators would allow a deeper understanding of the *time incompatibility* and the *disadvantaged worker* mechanisms. Whereas childcare enrollment in and of itself is an important indicator of the reconciliation of work and family life, the extent to which childcare is in sync with standard working hours, its flexibility, quality, price, and funding all impact on its capacity to alleviate time incompatibilities between paid work and care (Bünning & Pollman-Schult, 2016; Gornick & Meyers, 2004: Halldén, Levanon, & Kricheli-Katz, 2016). Similarly, valuable work has been done to explore the tentative relation between collective bargaining and the wages of traditionally underrepresented groups of workers, which suggests both the level of coordination and the unionization rate of marginalized workers affect the inclusion of women's and mothers' issues on the bargaining agenda (Dickens, 2000; Heery, 2006; Milkman, 2016; Pettit & Hook, 2009). Future research might explore this in more depth by pairing the social position of mothers with more detailed measurements of women's bargaining power and the childcare facilities they use.

Within the bounds of the current availability of macro indicators for a broad set of countries, however, we are able to demonstrate that the effect of social position on the

motherhood wage penalty differs across social contexts. Because the WageIndicator dataset is cross-sectional in nature, our analyses cannot provide conclusive evidence with regard to the causality of these relations, nor can they replace the detailed longitudinal surveys or even register data available in select countries. The use of this dataset, however, does allow us to take further steps toward more global analyses of the motherhood penalty on wages by exploring patterns of inequality in countries that are not usually included in sociological comparisons, thus pointing toward avenues for further research. We sincerely hope and believe that the efforts that are currently being undertaken by a number of organizations, including the WageIndicator Foundation, to collect sociologically relevant labor market micro-data from an ever wider set of countries will soon allow us to study intersectional inequalities on a more causal level.

Through this study, we mean to show that analyses that include broader sets of countries are a worthwhile endeavor and provide a number of pointers for future research. In our diverse sample, the *disadvantaged worker* hypothesis has received the strongest support. We find that the lower social position group pays higher penalties for motherhood than the medium and high social position groups. However, individual-level mechanisms theorized in the *time incompatibility* were also found to be at work. Additionally, we find evidence of country differences in the social position effect. Living in a less equal country increases the relative advantage of high social position mothers. Childcare enrollment appears to aid the low social position group more than the medium position group, and it helps both groups to catch up with their high social position peers. Our findings are thus most consistent with the *time incompatibility* and the *disadvantaged worker* logics, in which higher social position women are better able to mitigate the fallout from starting a family, even in less supportive environments.

End notes

[1] We do not draw on studies that have measured the intersection of motherhood and race or ethnicity, which we argue aim to measure multiple underlying concepts, rather than socioeconomic positionality alone.

[2] These Dutch findings are consistent with Todd's (2001) results, whereas the findings of a much larger penalty in annual earnings by Budig, Misra, and Boeckmann (2012, 2016) indicate that Dutch mothers are disadvantaged in regard to their labor market attachment rather than hourly earnings.

5.6 Appendices

Table 5.5 Description of dataset

Variable name	Variable description	Measurement	Source
wagenetppplog	hourly wage in purchasing power partity	Natural log of wages for each country after dropping the lowest and highest 2% observations	WageIndicator Global Dataset 2012-2015
chld	Motherhood status	0 = no child; 1 = one or more children	WageIndicator Global Dataset 2012-2015
eseg2014	socio-economic group	socio-economic grouping based on occupation and self-employment/dependent employment status	ESeG 2014 classification
socpos	respondent's social position	Low (EsEG 6.1 and up), medium (ESeG 3.1-5.4), High (ESeG 2.5 and down)	own calculation
age	respondent's age a time of the survey	age, mean centered	WageIndicator Global Dataset 2012-2015
surveyy	Year the survey was completed	2012 to 2015	WageIndicator Global Dataset 2012-2015
lambda	Probability of being employed	Inverse mills ratio (Ø.5, σ.3)	IPUMS, LIS
firmfema	Share of women in the firm	Self-reported share of women in the firm	WageIndicator Global Dataset 2012-2015
nace2000	Industrial sector	Four sectors. (1) agriculture, manufacturing and construction, (2) trade, transport, and hospitality, (3, ref) commercial services, (4) public sector, health care, and education	WageIndicator Global Dataset 2012-2015
firmsize	Size of the firm	Ten point ordinal scale from 0 (0) to 10 (5000 or more) employees; Ø50-100 employees	WageIndicator Global Dataset 2012-2015
jobpromo	Having received a promotion at current employer	dummy 0/1	WageIndicator Global Dataset 2012-2015
break	Number of breaks	Count variable. Number of time a respondent has taken time out of employment	WageIndicator Global Dataset 2012-2015
parttime_small	works fewer than 12 hours per week	Dummy variable for respondents reporting working hours under 12 hours per week	WageIndicator Global Dataset 2012-2015
parttime_large	works between 12 and 32 hours per week	Dummy variable for respondents reporting working hours from 12 to 32 hours per week	WageIndicator Global Dataset 2012-2015
longhrs	works more than 55 hours per week	Dummy variable for respondents reporting working hours of over 55 hours per week	WageIndicator Global Dataset 2012-2015

Table 5.5 continued

Variable name	Variable description	Measurement	Source
eveshift	works evening shifts	Dummy. Composite of working both shifts and evenings regularly	WageIndicator Global Dataset 2012-2015
cash	Paid in cash	Dummy 0/1	WageIndicator Global Dataset 2012-2015
memtrad1	Trade union member	dummy 0/1	WageIndicator Global Dataset 2012-2016
GINI	Gini coefficient	Country's GINI coefficient in 2013. Scale from 0 (total equality) to 100 (total inquality) (Ø.33, σ.11)	World Bank
CAREu3	Childcare enrollment	Share of all children under the age of three that is enrolled in formal childcare institutions (Ø.24, σ.19)	UNECSO
COLBAR	Collective bargaining coverage	Share of employees covered by collective agreements (Ø.64, σ.24)	ICTWSS

Table 5.6 Wage effects of motherhood and social position

	Model 1	Model 2	Model 3	Model 4	Model 5
Has (a) child(ren)	-0.108***	-0.086***	-0.115***	-0.124***	-0.190***
Medium social position		0.119***	0.161***	0.137***	0.132***
High social position		0.364***	0.343***	0.298***	0.299***
Child * medium social position			0.018	0.028	0.087*
Child * high social position			0.062***	0.062***	0.097+
Promoted at current firm				0.126***	0.139***
Mid social position * promoted					-0.016
High social position * promoted					-0.008
Child * promoted					0.083***
Child * mid social position * promoted					-0.079*
Child * high social position * promoted					-0.127**
Child * child in daycare					0.011
Child * mid social position * daycare					0.008
Child * high social position * daycare					0.015
Works <12 hrs				0.892***	0.841***
Mid social position * <12 hrs					0.041
High social position * <12 hrs					-0.069
Child * <12 hrs					0.137
Child * mid social position * <12 hrs					-0.165*
Child * high social position * <12 hrs					0.019
Works 13-32 hrs				0.216***	0.143**
Mid social position * 13-32 hrs					0.018
High social position * 13-32 hrs					0.075*
Child * 13-32 hrs					0.049
Child * mid social position * 13-32 hrs					-0.029
Child * high social position * 13-32 hrs					0.027
Works long hours				-0.419***	-0.397***
High social position * long hrs					0.114
Mid social position * long hrs					-0.049
Child * long hrs					-0.051
Child * mid social position * long hrs					0.056
Child * high social position * long hrs					-0.028
Works evenings				-0.019	-0.032
Mid social position * evenings					0.023
High social position * evenings					0.008
Child * evenings					0.058
Child * mid social position * evenings					-0.088**

Table 5.6 continued

	Model 1	Model 2	Model 3	Model 4	Model 5
Child * high social position * evenings					-0.064
Number of career breaks				-0.021***	-0.010
Mid social position * breaks					-0.010
High social position * breaks					-0.019*
Child * breaks					-0.007
Child * mid social position * breaks					0.009
Child * high social position * breaks					0.003
Paid in cash				-0.150***	-0.185***
Mid social position * cash					0.054
High social position * cash					0.060
Child * cash					0.051*
Child * mid social position * cash					-0.069+
Child * high social position * cash					-0.047
Member of Trade union				-0.061*	-0.058
Mid social position * trade union					-0.025
High social position * trade union					-0.027
Child * trade union					0.005
Child * mid social position * trade union					-0.016
Child * high social position * trade union					0.031
Constant	2.246***	1.903***	1.910***	1.906***	1.850***
ICC L1	0.56339	0.57731	0.59784	0.69624	0.52005
-2LL	-60069	-58428	-58420	-52646	-53013

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.
Note 1: Controlled for survey year, age, selectivity, industry, firm size, share of women in the firm
*Note 2: *** p<0.001, ** p<0.01, * p<0.05, + p<0.1*

Table 5.7 Distribution of respondents across countries and social position, with associated raw and net child penalties

	Low social position			Medium social position			High social position		
	Sample size	Raw Penalty	Net Penalty	Sample size	Raw Penalty	Net Penalty	Sample size	Raw Penalty	Net Penalty
Argentina	215	0.142+	0.140+	916	-0.28	-0.034	529	-0.132+	-0.108
Belgium	365	-0.06	-0.068	947	-0.042	-0.027	478	-0.034	-0.033
Brazil	965	-0.111+	-0.110+	1,718	-0.133**	-0.118**	803	-0.074	-0.077
Belarus	1,752	-0.202***	-0.200***	4,152	-0.290***	-0.324***	3,852	-0.326***	-0.288***
Czech Republic	330	-0.153*	-0.145+	526	-0.122*	-0.184***	328	-0.288***	-0.236**
Germany	2,734	-0.019	-0.017	6,058	-0.047	-0.029	3,316	-0.004	0.009
Indonesia	363	0.232***	0.229***	1,379	0.016	0.143**	1,216	0.139*	0.121*
Kazakhstan	611	-0.157*	-0.146*	3,262	-0.096**	-0.080+	2,795	-0.090+	-0.067
Netherlands	3,226	0.031	0.047	6,639	-0.019	-0.032	2,969	-0.046	-0.041
Russia	273	-0.258**	-0.258**	970	-0.261***	-0.294***	826	-0.385***	-0.336***
Slovakia	321	-0.214**	-0.186*	543	-0.225***	-0.239***	344	-0.215**	-0.184**
South Africa	270	-0.335***	-0.316***	2,658	-0.112**	-0.212***	1,863	-0.241***	-0.208***
Ukraine	1,094	-0.246***	-0.227***	5,021	-0.278***	-0.304***	3,809	-0.317***	-0.288***
Total	12,519	-0.104*	-0.067*	34,789	-0.126***	-0.110***	23,128	-0.155***	-0.134***

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.
Note 1: raw penalties are controlled for survey year, age, age squared, and selectivity into employment
Note 2: net penalties are controlled for survey year, age, selectivity, industry, firm size, share of women in the firm

Table 5.8 Wage effects of motherhood and social position – models with gross wages

	Model 1	Model 2	Model 3	Model 4	Model 5
Has (a) child(ren)	-0.124***	-0.104***	-0.170***	-0.180***	-0.245***
Medium social position		0.219***	0.175***	0.151***	0.159***
High social position		0.426***	0.362***	0.318***	0.327***
Child * medium social position			0.067**	0.072**	0.126***
Child * high social position			0.100***	0.103***	0.167***

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=53,047, population weights, random intercept and random slopes.
Note 1: Model 1 through 3 controlled for survey year, age, selectivity, industry, firm size , share of women in the firm.
Note 2: Model 4 controlled for model 3 controls and part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership.
Note 3: Model 5 controlled for model 3 controls and three-way interactions with social position, motherhood and model 4 controls.
*Note 4: *** p<0.001, ** p<0.01, * p<0.05, + p<0.1*

Table 5.9 Country variation in the effect of social position on the child penalty - models with gross wages

	Model 1	Model 2	Model 3
Has (a) child(ren)	-0.271***	-0.254***	-0.261***
Medium social position	0.155***	0.151***	0.155***
High social position	0.327***	0.323***	0.326***
Child * medium social position	0.136***	0.130***	0.127***
Child * high social position	0.168***	0.160***	0.156***
Gini coefficient	-0.001		
Gini * medium social position	-0.001		
Gini * high social position	0.003		
Gini * child	-0.002		
Gini * child * medium social position	0.002		
Gini * child * high social position	0.003		
Child care - enrollment children under 3		0.022*	
Childcare * medium social position		-0.001	
Childcare * high social position		-0.002	
Childcare * child		0.003*	
Childcare * child * medium social position		-0.000	
Childcare * child * high social position		-0.003	
Collective bargaining coverage			0.013+
Bargaining * medium social position			-0.001
Bargaining * high social position			-0.003*
Bargaining * child			0.001
Bargaining * child * medium social position			-0.000
Bargaining * child * high social position			-0.001

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=53,047, population weights, random intercept and random slopes.
Note 1: Controlled for survey year, age, selectivity, industry, firm size , share of women in the firm, part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership, and three-way interactions with social position, motherhood and controls from model 5, table 2.
*Note 2: *** p<0.001, ** p<0.01, * p<0.05, + p<0.1*

Chapter 6

Conclusions

6.1 The dissertation project

In this dissertation, I set out to examine the effect of motherhood on women's paid work in a global context. This project was motivated by observations of the societal and academic relevance of this question. Motherhood remains one of the largest impediments to women's labor market emancipation today, while parenthood simultaneously is an important life goal for the majority of young women and men. In the face of falling fertility rates and delayed childbirth, the incompatibility of work and family goals has been highly politicized in high-income countries. In developing countries, drives towards higher female labor force participation have encountered concerns that work is performed by the poorest women under precarious conditions, despite popular aversion towards working mothers and despite fertility in upper-middle-income countries having fallen below replacement rates already (De Giusti & Kambhampati, 2015; De Silva & Tenreyo, 2017; Kucera & Tejani, 2014; Mehrotra & Parida, 2017; UN, 2017).

Previous research has shown that the effect of motherhood on women's paid work differs between countries. Economic, policy, and cultural contexts influence the potential costs and gains from paid work, the extent to which paid work and unpaid care task can be combined, and the appropriateness of working or staying at home when children are small (Fortin, 2005; Hegewisch & Gornick, 2011; Pfau-Effinger, 2005; Rendall, 2013; Steiber & Haas, 2012; Stier, Lewin-Epstein, & Braun, 2001). Previous research has also shown that mothers in low compared to high social positions face diverse opportunities and constraints, as well as having different ways of dealing with time and role incompatibilities (Bhalla & Kaur, 2011; Goldin, 2006; Haas et al., 2006; Jacobs & Gerson, 2004; Mandel, 2011; Milkman, 2016; Nussbaum, 2001; Salway, Rahman, & Jesmin, 2003).

However, three major research gaps can be identified. First, most of our knowledge of motherhood effects on women's paid work is based on studies that test the effect of country-level contexts on a single labor market outcome, like employment (Hegewisch & Gornick, 2011; Steiber & Haas, 2012). Second, there is little academic consensus regarding the question how a mother's social position within a country moderates the effects of country contexts on labor market outcomes (Budig, Misra, & Boeckmann, 2016; Halldén, Levanon, & Kricheli-Katz, 2016; Todd, 2001; Tonoyan, Budig, & Strohmeyer, 2010). Despite indications from scholars working on trade-offs that country contexts affect gender inequalities differently across labor market outcomes and social position, there is little evidence showing whether this is the case for motherhood effects too. Finally, the strict divide between studies into industrialized and developing countries means that it remains unclear whether theories and concepts developed in the contexts of high-income countries apply more broadly; and whether these

findings are specific to historically European and Anglo-Saxon contexts or to their level of economic development (Bloom et al., 2007; Lincove, 2008).

These are the research gaps I have attempted to address by asking: *How does women's social position moderate the way economic, policy, and cultural contexts influence motherhood effects in labor market outcomes in industrialized and developing countries?* I researched these heterogeneous effects by conducting four studies, presented in chapters two through five. The first study (Chapter 2) attempted to identify *which country-level indicators can explain differences in aggregate female labor force participation rates in 117 countries*. Analyses indicate that higher care burdens start being associated with lower labor force participation somewhere at the transition from lower- to upper-middle-income levels. In the remaining studies (Chapters 3-5), I therefore re-adjusted the scope to high- and middle-income countries for the sake of comparability. These studies also introduce the concept of social position and allow for the identification of motherhood, social position, and labor market outcomes on the individual level. I asked: *how does women's social position moderate the way country contexts influence the motherhood effect on (1) employment, (2) self-employment, and (3) wages in industrialized and developing countries?*

These findings were presented in four substantive chapters (chapters 2-5), which addressed one research question each; a brief reiteration of the main results can also be found in English summary at the end of this book. In this concluding chapter, I will attempt to answer the overarching research question by integrating the findings from the four studies and reflecting on their theoretical implications. I do so in the next section by returning to the schema from the introductory first chapter of this dissertation, which is displayed in Figure 6.1 (copy of Figure 1.2). In Section 6.3, I reflect on the contributions of the dissertation by returning to the original aims of the research project (see Section 1.1.2). Finally, in Section 6.4, I discuss the research gaps that have emerged from this project and set out a number avenues for future research.

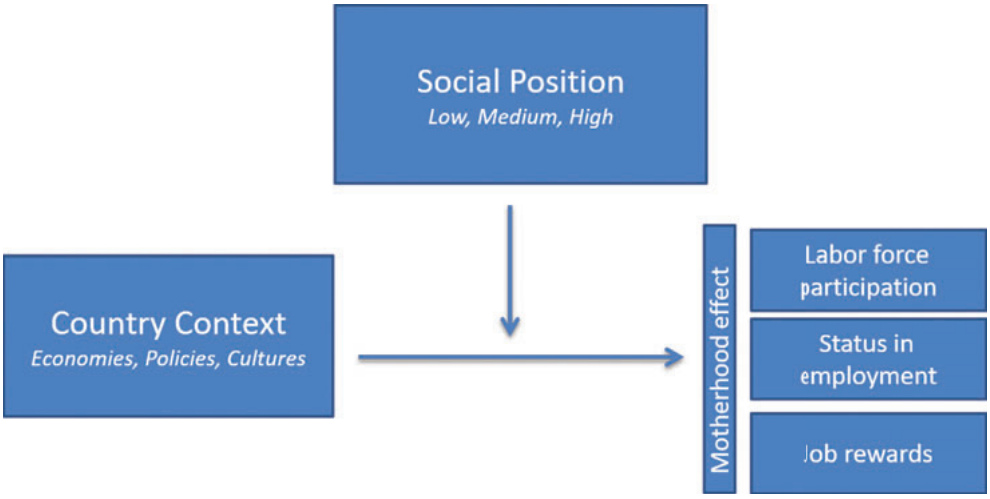
6.2 Main findings

6.2.1 Effect of motherhood on women's labor market outcomes

In this dissertation, I have studied the effect of motherhood, country contexts, and social position on women's labor market outcomes. In this section, I will discuss the main findings starting from the association between motherhood and women's labor market status per se, as displayed on the right side of Figure 6.1. This relationship is already well-established in the literature. Decades of research have demonstrated that motherhood is ordinarily associated with lower labor force participation (Agüero & Marks, 2010; Benería, 1992; Brewster & Rindfuss, 2000; Cruces & Galiani, 2007; Pettit & Hook, 2005; Uunk, Kalmijn, & Muffels, 2005)

and with lower job rewards (Abendroth, Huffman, & Treas, 2014; Aisenbrey, Evertsson, & Grunow, 2009; Bardasi & Gornick, 2008; Budig, Misra, & Boeckmann, 2012; Waldfogel, 1998). In consequence, I have not spent much attention to this primary relation in the dissertation. I only note here that previous findings have been confirmed in the third and fifth chapters: in most high- and middle-income countries, mothers are less likely to be employed and earn lower hourly wages than childless women.

Figure 6.1 Moderating effects of social position on the relation between country contexts and mothers' paid labor



This dissertation has also explored two less consensual, or less researched, themes regarding the relation between motherhood status and labor market outcomes. The first is whether this effect of motherhood is replicated for women's status in employment, measured as the motherhood effect on self-employment. Status in employment presents an interesting case for the study of motherhood effects because, like studies into part-time versus full-time employment, it is both possible to argue that the atypical labor relation is preferable to full-time dependent employment and that it is a penalty towards a more precarious labor market position. Furthermore, self-employment is the only labor market outcome studied here for which motherhood is effectively expected to yield a premium (McManus, 2001; Simoes, Crespo, & Moreira, 2016). The majority but not all existing studies indicate that motherhood is positively associated with women's probability of being self-employed (Campaña, Giménez-Nadal, & Molina, 2017). Studying 23 high- and middle-income countries in chapter

4, I find more mixed results. In only half (12) of the countries is the overall motherhood effect positive, and in fourteen countries at least one social position group experiences a motherhood premium. Negative effects of motherhood are found in seven countries. Taking into account only the overall effect of motherhood, I thus do not confirm a single dominant pattern of motherhood effects on self-employment. I return to these findings in Section 6.2.3, where I discuss recent work suggesting that mothers' self-employment is such a polarized phenomenon that the average country effect does not tell us much (Bjuggren & Henrekson, 2018; Ekinsmyth, 2014; Tonoyan, Budig, & Strohmeyer, 2010).

The second question under debate is whether the association between motherhood and women's labor market outcomes is the same across levels of economic development. Findings from Chapter two, in which motherhood is not measured directly, indicate that higher average care burdens in a country are associated lower female labor force participation rates in upper-middle-income and high-income countries. This association is positive in low-income countries and mixed in lower-middle-income countries. Analyses from the third chapter do confirm that the *effect* of motherhood (Table 6.2b) is negative in lower-middle, upper-middle, and high income countries. Only four African countries reveal substantial motherhood premiums on employment, an issue I will reflect on at greater length in Section 6.3. As noted above, motherhood effects on self-employment show more mixed results, but these are not clearly linked to levels of economic development. The effect of motherhood on wages is negative in all middle-income and high-income countries, with the exception of Indonesia.

I thus conclude that, with a handful of exceptions the general relation between motherhood and women's labor market outcomes does not vary between high- and middle-income countries, but that it is substantially different in low-income countries. This is not to say that there are no differences in the dynamics or the extent of motherhood effects in high- and middle-income countries. Indeed, the rest of this section is dedicated to explaining differences between country contexts. However, general expectations from industrialized countries that motherhood status is associated with lower, more tenuous, and lower rewarded engagement in paid labor does hold in the large majority of middle-income countries.

6.2.2 Effects of country contexts on mothers' labor market outcomes

The second relationship I researched was between country contexts and motherhood effects on women's labor market outcomes, i.e. the horizontal arrow from left to right in Figure 6.1. In this section, I review the main findings regarding the influence of economic, policy, and cultural contexts on motherhood effects for the studied labor market outcomes: employment participation, status in employment, and job rewards. These results are also summed up in

Table 6.1, where indicators of country contexts are bolded and results are printed in red if their heterogeneous effects are discussed in the next section on the moderating effect of social position (Section 6.2.3).

6.2.2.1 Economic contexts

Economic contexts set the structural conditions in the labor market and economy that govern whether opportunities to work exist and whether they outweigh the associated costs. Previous literature has shown that economic contexts can affect how mothers balance the need to provide income to the family with the costs of outsourcing care tasks (Boeckmann, Misra, & Budig, 2015; Del Boca, Pasqua, & Pronzato, 2009; Gerson, 2010; Korpi, Ferrarini, & Englund, 2013). I measure economic contexts in a number of ways. First, as the level of economic development of the country, for which I use an indicator of counties' per capita GDP. In Chapter 2 the relation between economic development and women's labor force participation is found to be U-shaped, confirming decades of previous research (Goldin, 1995; Haghihat, 2002; Lincove, 2008; Pampel & Tanaka, 1986; Tam, 2011). In the third chapter, I find the same U-shaped relation using micro-data and confirm that the mean share of mothers in paid employment is slightly lower in upper-middle-income countries than in lower-middle-income countries (see Table 6.2a).

However, these findings must be qualified for several reasons. First, the U-shaped relation with aggregate female labor force participation appears to be driven by women under age 20 and over age 55 rather than by the age group of women most likely to be responsible for the care for dependent children. Second, aggregate female labor force participation rates are higher in countries with larger agricultural and services sectors and smaller in countries with large industrial sectors, which confirms that the U-shaped relationship is likely driven by work opportunities and other societal processes, as was posited as far back as the 1980s (Semyonov, 1980). Moreover, contrary to *levels* of maternal employment, the U-shaped relation with per capita GDP is not confirmed for motherhood *effects* on employment. Results from the third chapter indicate the size of motherhood effects on employment is negatively associated with per capita GDP. Motherhood effects on employment are effectively more negative in high-income countries, which suggests motherhood is *more* relevant to women's employment status at higher levels of per capita GDP and contrasts sharply with a view based on absolute levels of maternal employment. Finally, per capita GDP is negatively related to the share of mothers that is self-employed and positively to the level of wages earned, but unrelated to motherhood effects on self-employment or wages.

The second reason that economic contexts matter is that they can determine the extent to which mothers' income from paid labor is necessary to the family and whether earned incomes offset the cost of outsourcing childcare. In the third and fourth chapters, I measure

this mechanism by testing the effects of poverty rates and earnings inequality (GINI) in a country; earnings inequality is also included in the fifth chapter. This mechanism does not yield many results without taking into account mothers' social position in a country. The association of poverty rates and earnings inequality with the motherhood effect on self-employment is not significant, nor is the relation between earnings inequality and the motherhood effect on wages. Poverty rates and earnings inequality are positively related to motherhood effects on employment, indicating that the motherhood penalty on employment is estimated to be smaller in those countries.

The four studies of the dissertation thus indicate that motherhood penalties on employment are larger at higher levels of per capita GDP, although the overall share of mothers in paid employment is also larger. Net of per capita GDP, motherhood penalties are smaller in countries with higher poverty rates and earnings inequality. This is line with findings from many development scholars, who have suggested that mothers are less likely to be out of the labor force in countries where a large share of the population is forced to designate a second earner (Bhalla & Kaur, 2011; Boeri, 2018; Elson, 1999; Kucera & Tejani, 2014; Mehrotra & Parida, 2017). There is no evidence, however, that economic contexts can explain motherhood effects on self-employment or on wages.

6.2.2.2 Policy contexts

Policy contexts include public policies that facilitate or impede the participation and position of mothers in the labor market, be it by their presence or absence. Previous literature has shown that policy contexts can influence motherhood effects by reducing the incompatibility of work and care tasks (Gornick, Meyers, & Ross, 1997; Hegewish & Gornick, 2011; Korpi, 2000; Mandel, 2009; Mandel & Semyonov, 2006; Orloff, 2002; Pascall & Lewis, 2004; Pitt-Catsouphes, Kossek, & Sweet, 2015; Stier, Lewin-Epstein, & Braum, 2001). In the second chapter, I show that female labor force participation rates of women between ages 20 and 55 are higher in countries providing leaves of moderate length and at higher enrollment in pre-primary education.

These last findings are also confirmed in Chapter three, using micro-data. Higher enrollment in both pre-primary education and childcare for ages 0-2 as well as expenditure on pre-primary education are associated with higher levels of maternal employment. However, only higher pupil-teacher ratios are associated with smaller motherhood penalties on employment. The pupil-teacher ratio, as shown in Chapter four, is also associated with a larger motherhood premium on self-employment. No overall effect of childcare is found on the motherhood penalty on wages. Surprisingly, I also find very limited evidence of any association between motherhood effects and policy measures related to working time, such as maternity leaves and part-time work.

In summary, the most relevant associations between policy contexts and motherhood effects that I found are thus related to early childhood care and education. Effects of pre-primary enrollment and the pupil-teacher ratio on the motherhood premium on self-employment are as expected, given previous evidence that self-employed mothers organize their business activities around children's school times and locations in high- and middle-income countries alike (Annink & den Dulk, 2012; Boeri, 2018; Campaña, Giménez-Nadal, & Molina, 2017; Ekinsmyth, 2011). Additional analyses show that the effect of the pupil-teacher ratio has a larger positive effect in countries with high enrollment levels in pre-primary education (Figure 4.5, Chapter 4) and thus suggest the results can be interpreted as a sign that motherhood premiums on self-employment are larger when the quality of pre-primary education is lower.

However, the positive effect of the pupil-teacher ratio on the motherhood effect on employment is less intuitive, since it suggests that motherhood penalties are smaller when class sizes are larger. While being unable to test this directly, I suggest a possible explanation of this relationship might be that class sizes are larger in countries where pre-primary education is more integrated in the school curriculum. The null-findings regarding the association between childcare and the motherhood effect on wages are unexpected. I go deeper into the relationship in Section 6.1.3, which discusses the heterogeneous effects of childcare.

6.2.2.3 Cultural contexts

Cultural contexts are conceptualized as informal institutions that describe the cultural appropriateness of mothers' paid work. Previous literature has shown that cultural contexts can influence the size of motherhood effects by encouraging or discouraging paid work (Hegewish & Gornick, 2011; Pitt-Catsouphes, Kossek, & Sweet, 2015; Steiber & Haas, 2012). In this dissertation, I measure both the outcomes of cultural contexts, such as gender equality, as well as indicators reflecting attitudes or preferences. Results from the second chapter indicate that labor force participation rates of women between 20 and 55 are higher in countries with stronger political rights for women and where lower shares of the population adhere to a single religious denomination. Gender equality and supportive attitudes towards working mothers are also found to be positively associated with the share of mothers in paid employment (Chapter 3), but not with motherhood effects on employment (Chapter 3) or self-employment (Chapter 4).

These findings suggest that cultural contexts are associated with mothers' labor market outcomes, but not more so than with labor market outcomes of childless women. Regarding the effects of gender equality, this is in line with arguments that the benefits of gender equality move from the most advantaged top to the disadvantaged bottom, posited by Mandel and colleagues (Mandel, 2011; Mandel & Semyonov, 2005, 2006; Mandel & Shalev,

2009). Because childless women more closely resemble the ideal worker than mothers, advances in gender equality would not then be expected to close the gap between mothers and childless women (although they might, within the bounds of this argument, reduce mothers' disadvantage compared to men or to fathers).

The finding that the attitudinal variables are not associated with the motherhood effect on any labor market outcome is unexpected. Attitudes towards working mothers and housewives, after all, were hypothesized to revolve around beliefs about appropriate ways to balance good mother and good worker roles (Christopher, 2004; Cuddy, Fiske, & Glick, 2004; Pfau-Effinger, 2004; Ridgeway & Correll, 2004b; Zhou, 2017). Without going deeper into this issue, which is discussed at some length in the next section, I conclude here that average attitudes towards working mothers do not explain motherhood effects without reference to the moderating effect of social position.

6.2.3 The moderating effect of social position

Throughout this dissertation, I have studied how the relation between country level contexts and motherhood effects is moderated by social position. In this section, I will discuss the main findings regarding social position and its added value to our insights into the dynamics of mothers' labor market outcomes in high- and middle-income countries. First, I discuss which effects social position is found to have on motherhood effects per se. That is to say, how are motherhood effects expected to vary on the individual-level based solely on information regarding women's motherhood and social position status. Second, I will discuss how taking into account women's social position alters or deepens our understanding of the effects of country contexts. Since the intersection of social position and motherhood status is first introduced in the third chapter, findings in this section do not include results from the second chapter on aggregate female labor force participation.

Table 6.1 Main effects of country level contexts on motherhood effects

	Study 1	Study 2	Study 3	Study 4
	Female labor force participation	Employment	Self-employment	Wages
Motherhood	Negative effect of **care burdens** in high- and upper-middle-income countries	Negative effect of **motherhood** in all but four African lower-middle-income countries	Mixed effects of **motherhood**	Negative effects of **motherhood** in all countries, except Indonesia
Economic contexts	**GDP** is related to the FLPR in a U-shape, especially for the youngest and oldest age groups. Industrial sectors provide an alternative explanation.	**GDP** is related to maternal employment levels in a U-shape and negatively related to motherhood effects **Poverty** and **GINI** are positively related to motherhood effects	**GDP** is negatively related to the share of mothers in self-employment and not related to motherhood effects. **Poverty** and **GINI** are not associated with the motherhood effect	**GDP** is positively related to level of wages earned and not related to motherhood effects. **GINI** is not associated with the size of the motherhood effect
Policy contexts	FLPRs are higher in countries with higher enrollment in **pre-primary education** and with paid **maternity leave** of moderate length.	Employment levels are higher in countries with higher enrollment in **childcare** and **pre-primary** education and with higher **spending on pre-primary** education. The **pupil-teacher ratio** in pre-primary education is positively related to motherhood effects	The motherhood premium on self-employment is larger in countries with higher enrollment in **pre-primary education** and higher **pupil-teacher ratios**.	The overall motherhood penalty on hourly wages is not associated with **childcare** enrollment.
Cultural contexts	FLPRs are higher in countries with more **political rights** for women and lower shares of the population adhere to the dominant **religious denomination**.	**Gender equality** and supportive **attitudes towards working mothers** are positively related to maternal employment levels and unrelated to motherhood effects.	**Gender equality** and attitudes towards **working mothers** and **housewives** are not associated with the overall motherhood premium on self-employment.	

Table 6.2 Overview of chapter results regarding the share of mothers that is employed or self-employed, median wages, and motherhood effects on employment, self-employment, and wages by social position and country income group

(a)	Mothers'											
	Share in employment				Share in self-employment				Median wage (ppp)			
	Overall	Low	Medium	High	Overall	Low	Medium	High	Overall	Low	Medium	High
Lower-middle-income	0.528	0.514	0.532	0.537	0.216	0.221	0.243	0.151	4.635	3.016	4.263	6.508
Upper-middle-income	0.470	0.362	0.455	0.652	0.060	0.053	0.067	0.067				
High-income	0.622	0.440	0.637	0.772	0.066	0.049	0.065	0.082	9.931	8.219	10.083	12.270
(b)	Motherhood effect on											
	Employment (AME)				Self-employment (AME)				Net Wages (%)			
	Overall	Low	Medium	High	Overall	Low	Medium	High	Overall	Low	Medium	High
Lower-middle-income	-0.0071	-0.0026	-0.0120	-0.0319	0.0322	0.0325	0.0287	0.0193	-0.1184	-0.1265	-0.1189	-0.0579
Upper-middle-income	-0.0559	-0.0319	-0.0578	-0.0481	0.0008	0.0007	0.0003	0.0003				
High-income	-0.0908	-0.0581	-0.0946	-0.0796	-0.0014	-0.0012	-0.0026	0.0030	-0.0725	-0.1257	-0.0599	-0.0380

Note: share in and motherhood effect on employment based on analyses from chapter 3; share in and motherhood effect on self-employment based on analyses from chapter 4; median wages and motherhood effect on wages based on analyses from chapter 5.

6.2.3.1 Social position and motherhood effects

While it is impossible to study the individual level relation between social position and motherhood effects in isolation from country context, there are a number of things to be said about the way social position affects the relationship between motherhood status and women's labor market outcomes. In this sub-section, I therefore discuss the country patterns found for motherhood effects on each of the labor market outcomes. Summary statistics of these results are shown in Table 6.2, which displays the average value for the three social position groups on each of these indicators in lower-middle-, upper-middle-, and high-income countries respectively. These dominant patterns of the moderating effect of social position are also relevant to the debate whether motherhood is a uniformly disruptive event to women's careers, or whether it reduces or compounds pre-existing inequalities between women in different social positions, which I return to in Section 6.3.3 (Budig, 2006a, 2006b; England et al., 2016; Halldén, Levanon, & Kricheli-Katz, 2016).

In the study on motherhood effects on employment, I find that mothers in high social positions are most likely and mothers in low social position least likely to be employed in high- and upper-middle income countries. These results confirm previous findings and have been linked to the better opportunities that mothers in high social positions have in the labor market, making careers more attractive and increasing the likelihood that earned incomes will offset the cost of outsourcing care tasks (Becker, 1991; England, Garcia-Beaulieu, & Ross, 2004). Differences in employment levels by social position are less marked in lower-middle-income countries, as shown in table 6.2a. As such, these findings neither confirm nor deny studies that have suggested that the relation between social position and mothers' paid employment works in the exact opposite way in middle-income countries (Goldin, 1995; Lokshin, Glinskaya, & Garcia, 2000; Mehrotra & Parida, 2017; Wejnert & Almagul, 2005). Rather, I conclude that social position affects maternal employment levels in similar ways in high- and upper-middle-income countries, while the social position effect is sometimes different but certainly not opposite in lower-middle-income countries. Mothers in low social positions are least likely to be employed across high- and middle-income countries, while the size of that gap widens at high levels of economic development.

Findings regarding the *effect* of motherhood on women's probability of being employed tell a different story. Here, it is effectively the medium social position group that experiences the largest motherhood effects on employment in upper middle- and high-income countries. As the results from Chapter 3 and Table 6.2b show, the higher maternal employment levels of medium compared to low social position mothers conceals their larger penalties on employment in 20 of the 31 countries studied. In two African countries, the penalties for medium social position mothers are large enough to drop their employment levels below those of the low social position women that their childless peers outperform.

Social position is quintessential to current theories on motherhood effects on self-employment. In fact, one would be hard-pressed to find any sociological work on maternal self-employment since the 1990s that does not, implicitly or explicitly, acknowledge the existence of differences between mothers in high and low social positions (McManus, 2001). The two dominant theories that I test in the fourth chapter, then, also revolve around the intersection of motherhood and social position. I do not find a dominant social position effect across countries. Moreover, a substantial number of countries show that motherhood premiums on self-employment are driven either by both the high and low social position groups, or by the medium group. Therefore, I argued in Chapter four that the *mumpreneurship* and *disadvantaged worker* theses should not be conceived of as opposing theories regarding the effect of social position, but rather as two separate theories speaking to mothers in a high social position and in a low social position respectively.

Finally, in Chapter 5, we study the effect of social position on the motherhood wage penalty. In this last case, too, the expected effect of social position is still under debate and we therefore test three competing theories. In the study of 13 high- and middle-income countries, we find larger penalties for mothers in low social positions (19%) compared to those in medium (10%) and high (9%) social positions. Results from chapter 5 indicate that mothers in high social positions experience the smallest wage penalties, although employment breaks are associated with larger wage penalties. We also find evidence that motherhood wage penalties are smaller when mothers in low social positions have been promoted in their current firm, which suggests that the wage penalties of mothers in low social positions function primarily through their inability to retain jobs. The wage penalties experienced by women in medium social positions are comparable to those in high social positions only if they work in fulltime, 9 to 5 office jobs, whereas they are comparable to their low social position peers if they do not. The wage penalty for mothers in medium social positions is in fact only smaller than that of low social positions mothers after these factors are controlled for. Our findings thus support the *disadvantaged worker* thesis, which argues that women in the weakest bargaining position will be least able to mitigate work-family conflicts (Budig & Hodges, 2010; Todd, 2010). Results also provide partial support for the *time incompatibility* thesis, which posits that women in medium social positions will suffer the largest penalties because they work in low-autonomy office jobs which are least flexibly combined with care tasks (Anderson, Binder, & Krause, 2003; Hook & Pettit, 2016).

6.2.3.2 Social position and economic contexts

As reported in Section 6.2.2, economic contexts were found to be associated with motherhood effects on women's labor market outcomes in two ways. The first findings was that per capita GDP is associated with maternal employment *levels* in a U-shaped relation,

negatively related to the share of mothers in self-employment, and negatively related to motherhood effects on employment. Based on the findings from Chapter 3, I posit that the U-shaped relation between per capita GDP seems largely driven by the low and medium social position groups. Employment levels of mothers in low and medium social positions are lowest in upper middle-income countries, as shown in table 6.2(a). Employment levels of mothers in medium social positions in high-income countries exceed levels from lower-middle-income countries, while those of low social position mothers do not; in both cases this results in a U-shaped relationship. Notably, the U-shaped relation does not apply at all to mothers in high social positions, whose employment levels are higher at each subsequent income-level. No social position effects were found for the negative relation between motherhood effects on employment and per capita GDP. In the descriptive table 6.2 this also appears to apply to all social position groups. Nor did I find any evidence for a moderating effect of social position on the negative relation between per capita GDP and the share of mothers in self-employment.

The second finding on the relation between economic contexts and motherhood effects was that poverty rates and earnings inequality were positively related with the motherhood effect on employment, suggesting that motherhood penalties are smaller in countries with higher poverty rates and earnings inequality. However, these findings are not replicated across social position groups. Poverty rates were negatively related to the effect of being in a low social position, implying that the motherhood penalty on employment for women in low social positions is relatively large compared to their medium and high social position counterparts in countries with higher poverty rates (Chapter 3, Table 3.4). The positive effect of the GINI coefficient was confirmed for women in medium and high, but not in low social positions. High social position mothers experience smaller penalties on employment in countries with larger earnings inequality. While earnings inequality was not significantly associated with the overall motherhood effect on wages, it is associated with larger differences in wage penalties between social position groups. Earnings inequality does not appear to affect low social position mothers' employment or self-employment, but their wage penalties are more negative and larger compared to those of their peers in countries with higher GINI coefficients (see Figure 5.2). Thus, while the relation between economic contexts and motherhood effects on employment appeared to suggest that fewer mothers are out of paid labor in countries where a second income is more likely to be required, the introduction of social position as a moderating variable can show us that the opposite is true for mothers in low social position.

I therefore conclude that social position moderates the relation between economic contexts and motherhood effects on employment and wages. In fact, two theories arguing (1) that more mothers are forced into paid employment at higher levels of poverty and income

inequality (Boeri, 2018) and (2) that more mothers are forced out of paid employment at higher levels of poverty and income inequality (England, Garcia-Beaulieu, & Ross, 2004), are reconcilable when taking into account the moderating effect of social position. I found that motherhood penalties on employment are smaller in countries with higher income inequality and poverty, whereas penalties for the low social position group are larger compared to the medium and high social position groups.

6.2.3.3 Social position and policy contexts

As reported in Section 6.2.2, policy contexts were found to be associated with motherhood effects on women's labor market outcomes through the effects of early childhood care and education. Early childhood care and education was related to both the share of mothers in paid employment, motherhood effects on employment, and motherhood effects on self-employment. The relation with the motherhood effect on wages was not significant. Analyses that take account of women's social position, reveal a complex interrelationship that evidences the importance of childcare policies but also shows relevant null-effects.

In the models measuring the moderating effect of social position, the main effects of early childhood care and education presented in Section 6.2.2 are replicated for the medium social position group, as shown by the effect of the indicators on the main effect of motherhood in Table 6.3 (second column). However, findings from Chapters 3 through 5 also indicate that these results are not the same across social position. In the last two columns of Table 6.3, I show the findings regarding the moderating effect of being in a low or a high social position compared to being in a medium social position. In order to aid understanding of the dynamics of the moderating effects, I describe how social position affects the motherhood effects on the different labor market outcomes as found in previous sections. That is to say, I take into account here that we already know, for example, that the share of low social position mothers in paid employment is lower than those of the medium and high social position groups. In the table, a negative relation between enrollment in childcare and the size of the effect of being in a low social position is therefore described as implying that 'the share of low social position mothers in paid employment lags further behind the medium and high social position groups in countries with higher enrollment in childcare for ages 0-2'.

Table 6.3 Moderating effects of social position on the relation between four indicators for early childhood care and education and motherhood effects

	Main effect of motherhood	**Effect of being in a low social position**	**Effect of being in a high social position**
At higher childcare enrollment rates	Higher share of mothers in paid employment	Share of low social position mothers in paid employment lags behind more strongly	The motherhood penalty on wages for women in high social positions is closer to the medium group
At higher pre-primary enrollment rates	Higher share of mothers in paid employment; larger motherhood premium on self-employment	Share of low social position mothers in paid employment lags behind more strongly; The motherhood premium on self-employment is smaller for low social position mothers	
At a higher pupil-teacher ratios	Smaller motherhood penalty on employment; larger motherhood premium on self-employment	The motherhood penalty on employment is larger for low social position mothers; The motherhood premium on self-employment is smaller for low social position mothers	
At higher investment in pre-primary education	Higher share of mothers in paid employment	Share of low social position mothers in paid employment lags behind more strongly.	Share of high social position mothers in paid employment is closer to the medium group.

As summarized in Table 6.3, findings indicate that the share of low social position mothers in paid employment lags further behind the other groups in countries with higher enrollment in both childcare and pre-primary education and countries that invest more in pre-primary education. The motherhood penalty on employment is also relatively larger for women in low social positions in countries with higher pupil-teacher ratios in pre-primary education. This is not to say that childcare does not benefit the employment of mothers in low social positions, but that the effects on this group are smaller compared to the medium and high social position groups. Similar moderating effects of being in a low social position are found for the relation between the motherhood premium on self-employment and enrollment and the pupil-teacher ratio in pre-primary education. These findings, in turn, suggest that the overall motherhood premium on self-employment found in Chapter four is less likely to be driven by low social position mothers in countries with higher enrollment and pupil-teacher ratios in pre-primary education.

Being in a high social position is found to moderate the relation between early childhood care and education and motherhood effects in two ways. First, higher investment in pre-primary education is negatively associated with the size of the effect of being in a high social position on maternal employment *levels*. This indicates that the share of mothers in high social positions, who are generally much more likely to be in paid employment than their peers, is more similar to that of the medium social position group in countries that invest more in pre-primary education; from a policy perspective, one might argue investment in pre-primary education allows the medium social position group to catch up. Second, enrollment in childcare ages 0-2 is negatively related with the size of the effect of being in a high social position on the motherhood wage penalties. As shown in the fifth chapter, this does not imply that childcare enrollment leads to larger wages penalties for mothers in high social positions. Rather, these findings suggest that the positive overall effect of childcare is smaller for women in high social positions and that the gap between this group and the low and medium social position mothers is reduced (see Figure 5.3).

In conclusion, these findings thus suggest that enrollment in early childhood care and education primarily increases the share of medium and high social position mothers in employment, and reduces motherhood penalties on employment for these same groups. There is some tentative evidence that investments in pre-primary education raises the share of medium social position mothers in employment to a sufficient extent to reduce gaps between medium and high social position mothers. On the other hand, these same indicators suggest that the effects are smaller for the low social position group, which lags behind more. These findings contradict expectations that mothers in lower social positions will be more strongly affected by policy contexts due to their greater dependence on the provision of services. Nor do they directly support theories that women in higher social positions will reap the benefits from emancipatory opportunities (Mandel, 2011), because the effects are smaller for the high and the medium social position group. However, the results are in line with arguments that potential market earnings might not outweigh the cost of childcare for mothers in lower social positions (c.f. England et al., 2004).

Findings regarding the moderating effect of social position on motherhood effects on two other labor market outcomes, self-employment and wages, do show evidence of the greater dependence of low social position mothers on public policies. Results from the analyses of wage penalties indicate that the disadvantage of mothers in low social positions is worse in countries with lower enrollment in formal childcare institutions. Both low and medium social position mothers' penalties on wages are smaller compared to the high social position group in countries where childcare enrollment is higher. Results regarding the moderating effect of social position on the relation between early childhood care and education and motherhood premiums on self-employment, presented in the fourth chapter, also support

the dependence thesis. Findings suggests that the *disadvantaged worker* effect is stronger in countries with lower childcare and pre-primary enrollment, meaning that women in low social positions are more likely than the medium and high social position groups to be self-employed in countries where institutionalized childcare and pre-primary education are less accessible. On the other hand, women in high social positions where more likely than their peers in low and medium social positions to experience motherhood premiums on self-employment in countries where pre-primary education facilities have larger class sizes, particularly when combined with high enrollment levels.

6.2.3.4 Social position and cultural contexts

In the previous section, limited effects of cultural contexts were found. Gender equality was found to be positively associated with the share of mothers in paid employment. This positive effect of gender equality on the share of mothers in employment is replicated for medium and high social position mothers. However, results from the third chapter also indicate that the employment levels of mothers in low social position lag behind more in more gender equal countries. Recalling the debate on the benefits of gender equality, these findings are not unexpected (Mandel, 2011; Mandel & Semyonov, 2005, 2006; Mandel & Shalev, 2009).

More interestingly, social position appears to actively moderate the effect of the attitudinal indicators on mothers' labor market outcomes. In the analyses excluding considerations of social position, no associations were found between cultural contexts and motherhood *effects*. The positive association between supportive attitudes towards working mothers and the share of mothers in employment was the only evidence of any relation between mothers' paid work and attitudes towards working and non-working mothers. This relation is found to be driven by the medium social position group. Additionally, countries with more supportive attitudes towards working mothers showed a smaller penalty on employment for mothers in medium social positions compared to the low and high social position groups. These results confirm expectations that the stigmatization of mothers' paid work first and foremost concerns manual work and will affect medium social position mothers more than their low social position counterparts, because of their greater ability to forego income from paid work (Goldin, 1995; Mammen & Paxson, 2000).

The findings regarding attitudes towards non-working mothers deepen our understanding of how social position affects the relationship between motherhood effects and cultural contexts. While no overall results were found for attitudes towards housewives, social position acts as a moderating variable here too. More disapproving attitudes towards housewives are associated with smaller motherhood penalties on employment for the medium and high social position groups and with relatively larger penalties for women in low social positions (see Figure 3.6, Chapter 3). Moreover, the motherhood premium on

self-employment is larger for mothers in high social positions in countries where attitudes towards housewives are more negative (see Figure 4.6; Chapter 4).

These results suggest that social position moderates the relation between cultural contexts and motherhood effects in three ways. First, opportunities emanating from gender equality primarily benefit mothers in high social positions. Second, the stigmatization of working mothers affects mothers in medium social positions, whose jobs are more likely to be manual than those of the high social position groups and who are more likely to be able to forego the income from paid labor than the low social position group. Third, supportive attitudes towards housewives primarily affects those groups that are able to stay at home or become self-employed – mothers in high and to a lesser extent medium social positions.

6.3 Contributions to the field

6.3.1 The aims of the dissertation

In addition to the research questions, I formulated five aims that this dissertation would try to achieve. The first (1) was to disentangle motherhood effects by labor market outcome, social position and country context. This is the most concrete aim and has been discussed at length in Section 6.2. In this section, dedicated to the contributions of the dissertation, I reflect on the extent to which the remaining four aims were met. These aims were (2) to contribute to the work-family literature and the sociology of family and work by engaging with academic debates about the relative importance of policy for mothers' labor market outcomes; (3) to contribute to the stratification and intersectionality literatures by exploring which group of women experiences the largest motherhood effects; (4) to explore the geographical and developmental ranges of theories and concepts that are currently debated in sociological work covering industrialized countries; and (5) to critically review the state of scientific knowledge by examining the quality and reliability of both the data I used and my findings.

6.3.2 The importance of work-family policies

The second aim of the dissertation was to contribute to the work-family literature and the sociology of family and work by engaging with academic debates about the effectiveness of policy for mothers' labor market outcomes. I did so by examining the effect of policies aimed at improving the reconciliation of paid work and unpaid care tasks on female labor force participation and motherhood effects across countries and social positions in all four studies of the dissertation project. As described in Section 6.2, I found little evidence that policies allowing mothers to split their time between worker and mother roles (maternity leaves, part-time work, and maximum hours including overtime) influence the size of motherhood effects. Policies regarding early childhood care and education, on the other hand, were

shown to affect women in all social position groups and were related to the relative sizes of motherhood effects for the different social position groups. I argued that early childhood care and education helps mothers in medium social positions catch up with the high social position group by reducing their motherhood penalties on employment, reduced the disadvantage of the low social position group in terms of wage penalties, and is associated with increased motherhood premiums on self-employment for the high social position group.

These findings primarily speak to the work-family research debate on trade-offs. A group of scholars have argued that policies promoting better results for one social position group or on one particular labor market outcome are accompanied by setbacks for another (Korpi, Ferrarini, & Englund, 2013; Mandel, 2011; Mandel & Semyonov, 2009; Pettit & Hook, 2009). In the four studies, I find evidence that the associations of specific policies are regularly stronger for certain social groups, but I do not find directly opposite effects. I find very limited effects of work-family policies on the motherhood effects on employment or self-employment for women in low social positions. My results thus contribute to answering one of the major puzzles of work-family research: while most theories would suggest that mothers in low social positions should benefit more from childcare policies, since they lack the resources to outsource care, most studies have found the opposite (for an overview, see Del Boca, 2015).

The findings in this dissertation confirm earlier findings that the labor supply of mothers in higher social positions is more responsive to childcare policies. My findings, however, suggest that childcare policies will help mothers in low social positions in another way: by reducing wage penalties. Based on findings in Chapters 3 and 5, I would hypothesize that childcare is rarely subsidized to the level that offsets the utility curve for low wage earners, but it might make it easier for those already in the labor market to hold on to jobs, increase hours, and gain tenure. A number of studies of low-wage earners in a number of urban areas in the USA, have effectively pointed in this direction by showing childcare subsidies decreased childcare related work disruptions (Forry & Hofferth, 2011; Press, Fagan, & Laughlin's, 2006). Although these results speak to country level *patterns* of motherhood effects and interpretations about policy effects cannot be extended to include the effects on individual recipients, these findings indicate that policies do not affect social position groups in the same manner, nor are they always effective.

6.3.3 Motherhood effects and inequality structures

The third aim of the dissertation was to contribute to the sociology of stratification and the inequality literature by exploring which group of women experiences the largest motherhood effects. In Chapters 3 through 5, I therefore studied the moderating effect of social position on the size of motherhood effects and on the relation between country contexts and motherhood effects. I found that mothers in medium social positions pay the

largest motherhood penalties on employment, followed by mothers in low social positions. The low social position group also paid the largest penalties on wages, whereas countries differ in regard to the relative size and direction of the social position effect on motherhood premiums and penalties on self-employment. The negative effect of being in a medium social position on the motherhood penalty on employment was smaller in countries with higher enrollment and investment in childcare and pre-primary education. The disadvantage of mothers in low social positions was greater in countries with higher poverty rates and earnings inequality; enrollment in childcare was associated with a smaller motherhood penalty on wages.

These findings can contribute to the debate on stratification and motherhood penalties. In particular, scholars have asked whether motherhood entrenches pre-existing inequalities and leads to a kind of cumulative disadvantage, in which the women already in low social positions experience the largest motherhood effects, whether motherhood is a similarly disruptive event to the careers of all women, or might even affect those mothers most that had never diverged from good worker norms before childbirth (Budig & Hodges, 2010, 2014; England et al., 2016; Halldén, Levanon, & Kricheli, 2016). Based on the findings from this dissertation project, I argue that this question needs to be answered separately for different labor market outcomes. Results from the fifth chapter suggest that existing inequalities are exacerbated in relation to motherhood effects on job rewards: women in higher social positions, who earn the highest median hourly wages when childless, also experience the smallest motherhood penalties as a percentage of their wages.

As shown in the third chapter, however, motherhood has the most negative effect on women's probability of being employed for the medium social position group in 20 out of 31 cases. In two cases, this penalty is large enough to reduce their absolute employment *levels* to below those of the low social position group. These results are not easily explained as either reducing or compounding pre-existing inequalities between women. Findings that early childhood care and education and more supportive attitudes towards working mothers are associated with smaller penalties for the medium social position group in particular, suggest that this social position effect is driven by the extent to which mothers in different groups are able to mitigate role and time incompatibilities. This argument is supplemented by findings that poverty and earnings inequality increase the motherhood penalties on employment for women in low compared to medium social positions and that supportive attitudes towards non-working mothers reduce the motherhood penalties of high compared to medium social position mothers. The relative size of motherhood penalties for women in low, medium, and high social positions is even more context-specific in the case of self-employment.

The bigger question that comes up here, is whether motherhood effects signal the same thing across labor market outcomes. The most straightforward case is that of motherhood wage penalties, where being paid less for performing comparable work appears to have a fairly straightforward interpretation. The same might be said for other outcomes related to job rewards that were not studied in this dissertation, such as occupational status, access to social security and other benefits, or opportunities of being promoted. Motherhood effects on employment and self-employment, or other outcomes related to actors' labor *intensity*, however, do not provide such moral clarity. It is telling in this regard that the relative size of motherhood effects on employment and self-employment by social position appear to be much more context specific. Given the limitations of this study, I cannot answer questions regarding the (in)voluntary nature of individual level choices and preferences, but I will return to this issue in Sections 6.4.2 and 6.4.3.

6.3.4 Geographical and developmental boundaries of concepts

The fourth aim of this dissertation was to explore the developmental ranges of theories and concepts developed in industrialized country contexts. The dissertation broadens the scope of sociological research into motherhood effects to include both industrialized and developing countries. Chapter 2 discusses at some length at what level of development the relation between motherhood and labor force participation starts taking on a comparable shape to industrialized countries and concludes this is at the transition from lower-middle- to upper-middle-income countries. The analyses from Chapter 3 show that motherhood has a negative effect in all upper-middle and most lower-middle-income countries, including all countries with per capita GDP above $3000 (i.e. at the level of countries like Armenia and Ecuador). In order to be able to fully explore the limits of comparability of concepts and measurements, I then chose to exclude low-income countries but include both lower- and upper-middle income countries.

In each of the studies, I start by exploring the issue of replicability. Although in the article-formatted Chapters 2 through 5 these analyses are often reported only as a paragraph on descriptive results or as robustness checks, the research does include questions of whether broadly conceded findings are replicated in a more diverse country sample. Findings indicate that patterns of mothers' absolute *levels* of employment, self-employment, and median wages do show considerable association with economic development. These analyses also show that in terms of mothers' absolute labor market outcomes, social position groups have a similar relation to each other in upper middle- and high-income countries. However, Chapters 3 through 5 show that motherhood *effects* are in fact much less or not at all related to economic development. What is more, the effect of per capita GDP on motherhood effects on self-employment and the shares of mothers in employment, self-employment, and median

wages, is sensitive to the inclusion of country level variables measuring economic, policy, and cultural contexts. Average responses on attitudinal items regarding working mothers and housewives, for example, are able to explain in which countries high social position women experience motherhood premium on self-employment compared to penalties in a way GDP cannot. Poverty rates and economic inequality are associated with the relative sizes of child penalties for women in high and low social positions, when GDP is not.

Nevertheless, the dissertation explores, and therefore occasionally encounters, the boundaries of comparability. Most notably, this happens in the observation of motherhood premiums and penalties. In Chapter 3, motherhood premiums on employment where found in four lower middle-income African countries when penalties were expected. Motherhood premiums on wages were found in Indonesia and for low social position mothers in Argentina. In the study on self-employment (Chapter 4), I found 13 countries with motherhood premiums, 8 with penalties, and 2 with no significant effects. Where indicators of the *level* of maternal labor market outcomes (like employment levels) form an easily interpretable scale from low to high values, it is not as clear that premiums are the opposite of penalties in the case motherhood *effects*; in fact, it is very well possible that the different behavior of mothers, whether lagging behind or exceeding that of women in general, should be considered a sign of disadvantage. While motherhood effects on employment, where premiums are found only in four African countries, suggest that the explanation might be sought in the limits to the comparability across contexts (although this does not explain why two other African countries and six other lower middle-income countries do conform to the country pattern), such developmental or geographical boundaries are not found in the case of motherhood penalties on self-employment.

In summary, I find that the patterns of mothers' paid work for women in three different social position groups are comparable in high- and middle-income countries on average, whereas this is not the case for low-income countries. Motherhood effects on women's paid work are found to be relevant for all country income groups and are more satisfactorily explained by economic, policy, and cultural contexts than economic development.

6.3.5 Limitations of data and findings

The fifth aim of this dissertation was to critically review the state of scientific knowledge by examining the quality and reliability of both the data I used and my findings. I have done so in three ways: (1) by studying the way social position moderates the effects of the same concepts of economic, policy, and cultural country context on three different indicators of mothers labor market position; (2) by including countries in the analyses that have been underrepresented in comparative research designs; and (3) by exploring which country level indicators are available to measure motherhood effects in a wide range of countries.

Empirically, these analyses have resulted in new insights into the dynamics of motherhood effects in middle-income countries and a number understudied high-income countries. Chapters 3 and 4 in particular, and to a lesser extent Chapter 5, provide a clear overview of countries that could be included in future research into specific dynamics of motherhood effects in the labor market. Next to providing insights into how a range of newly researched countries fit within international patterns of motherhood effects, these results can provide pointers for the selection of countries in future research that has the ambition to study social realities with a broader developmental scope. The analyses have also provided new insights into the country indicators that might be used to study motherhood effects from a broader developmental perspective. Results suggest that poverty levels and earnings inequality are strong indicators for labor market outcomes and motherhood effects for women in low social positions. Childcare was associated with motherhood effects in much stronger ways than work-family policies regulating how mothers split their time between paid and unpaid work. Interestingly, indicators of how societies think about stay-at-home wives proved to be at least as strong an indicator of mothers' involvement in paid labor and class of worker as attitudes towards working mothers.

The choice for a broad geographical and developmental scope does occasionally put the research project at odds with current trends of analytical inference in sociology, which has come to value the isolation of more and more detailed indicators across increasingly localized treatment units and longitudinal designs for the sake of isolating causal effects and counterfactuals (Gangl, 2010; Headström & Ylikoski, 2010; Norkus, 2005). Rather than prioritizing the detailed, longitudinal surveys, I have selected reliable cross-sectional data and indicators that are available for a large number of countries in order to explore the validity of concepts and theories in a broader sample of countries. In consequence, there are a number of limitations to the conclusions that can be drawn from these results. For one, the available data are cross-sectional in nature, making it impossible to make any causal claims regarding the mechanisms and phenomena that were studied. Second, while a body of research has shown the relevance of household perspectives as well as of individual update of policies and preferences on mothers' paid work, these dynamics could not be measured in this study (Baird & Renolds, 2004; Biersteker, 2010; Bruneforth, 2015; Gerson, 2010; Glauber, 2011; Jacobs & Gerson, 2004). This is a data issue without a quick fix. The *World Values Survey* and Demographic and Health Studies have traditionally covered more developing countries, but lack detailed labor market indicators. The second wave of the Gender and Generations Survey lost instead of gained middle-income countries and the ISSP has not yet planned another wave on family and gender roles since its 2012 edition.

A last limitation is that occasionally, cruder country level indicators had to be chosen over more detailed measures for similar reasons of data availability. Most obviously, this has

been the case for the measurement of early childhood care and education. I use a multitude of measures including enrollment in childcare and pre-primary education, the pupil-teacher ratio and spending on pre-primary education. Most of these indicators seem to reveal some relation between childhood care and mothers' labor market outcomes, yet none compare to the standard indicator in high-income countries: the share of children in publicly funded childcare institutions by age. Even less data is available on the cost of childcare to families, which would seem to be key to explaining why the indicators for early childhood care and education do not appear to affect the motherhood effect on employment for women in low social positions.

6.4 An agenda for future research

In studying motherhood effects across countries and labor market outcomes, I have confirmed dominant patterns of motherhood effects (like penalties on employment and wages and premiums on self-employment) across high- and middle-income countries. As noted in the introductory first chapter, these labor market outcomes were chosen to study the extent to which mothers enter paid employment, the way in which they do so (status in employment), and their position in the labor market (job rewards). Labor supply, employment, self-employment, and wages are necessarily proxies for three kinds of labor market outcomes, as to study all possible outcomes would be far beyond the scope of this dissertation. Having summarized the findings of four studies, however, there are a number of questions that could specifically benefit from more study.

6.4.1 Causality and longitudinal perspectives

The first and largest open question, which has re-emerged in every study, is how to ascertain whether the mechanisms described in this dissertation are causal. A number factors in particular have prevented a causal interpretation so far. First, the data are cross-sectional and therefore do not measure transitions into motherhood statuses and employment outcomes or the effect of policy *changes* on aggregate patterns of mothers' paid labor. Second, only the WageIndicator survey contains a (limited) number of variables measuring individual use of policies like childcare, implying that in the other three studies I do not know whether individual mothers do or do not send their children to daycare, believe that being a housewife is less fulfilling than working for pay, and so on. Third, it is difficult to ascertain how representative the 13, 23, and 31 countries in the last three studies are of all high- and middle-income countries. For the advancement of knowledge on the moderating effect of social position on mothers' paid work globally it is crucial to take steps to overcome this uncertainty.

In order to do so, two viable options appear to be available. The first is to gather data for as many countries as possible for as many years as possible. The IPUMS census data center continues to release new samples every year, as has the Luxembourg Income Study in more recent years. While these datasets are cross-sectional, they could allow for the construction of pseudo-panels. Such models could follow cohorts of women, if not individuals, over decades and begin to answer questions about the effects of childcare reform, the introduction of paid maternity leave, or changing attitudes towards working women. Additionally, these models allow for some distinction between age and cohort effects. However, a major impediment to such efforts is the lack of global indicators. Even attempting to gather data for 23 or 31 countries for a single time point has proven challenging and at times impossible. As a pseudo-panel would have to start measurement no later than the 1990s, such studies would likely need to be limited to one or two specific policy instruments.

A second research strategy would be to reduce the number of countries and select only longitudinal datasets. These data would measure entry into different employment statuses as well as transitions to motherhood. As such, these analyses could address issues of selectivity as well as being able to measure whether women, for instance, effectively enter self-employment *after* the birth of the first child. This dissertation has been able to pinpoint a number of countries for each labor market outcome that are either good examples of patterns of social position effects or that go against an international trend – countries with motherhood premiums on employment or wages for example, or larger motherhood effects on self-employment for the medium social position group. These findings could inform a country selection for such in-depth longitudinal cases.

Longitudinal surveys, however, are even more scarce in middle-income countries and will likely pose harmonization problems. The UK-based Institute for Fiscal Studies has recently set up an ESRC funded Low and Middle Income Longitudinal Population Study Directory (LMIC LPS Directory). A search of the repository, however, shows that most surveys are limited to regions within countries or are not representative samples. In practice, a combination of studies covering more countries with cruder indicators and a sub-sample using longitudinal data might therefore be the most viable option.

6.4.2 The elusive middle: micro-macro interactions?

The second research gap in the literature on middle-income and high-income countries alike concerns the micro-macro interactions of motherhood effects by social position. This research gap is most evident in the analyses of the medium social position effect, which has stayed most elusive. Economic squeezes and the facilitation of work-family reconciliation appear to determine whether mothers in low social positions enter the labor market and hold on to jobs. Gender equality, cultural norms, and childcare are associated with the labor

market behavior of mothers in high social positions. Mothers in medium social positions, however, behave like one group in one instance and then like another. Being out-shone by the more extreme patterns of their lower and higher positioned peers in many studies, including this one, a clear perception of these women's behavior is still lacking.

It is conceivable, that this medium social position group simply consists of women that are closer to the high social position group while others resemble the lower social position group more closely – which would theorize the medium group as quite literally in the middle, being either almost-disadvantaged workers or moderately-privileged mothers. Robustness checks that redefined the boundaries of the social position groups or shifted between education-based and occupation-based operationalization, however, did not reveal any substantive sensitivities to composition effects. It is also quite possible, that medium social position groups either function according to their only logic, perhaps informed by strategies for upward social mobility and adaptation to adverse circumstances (Connelly, DeGraff & Levison, 1996; Lokshin, Glinskaya & Garcia, 2000; Paskov; Salway, Rahman & Jesmin, 2003; Wejnert & Amalgul, 2006). Results from Chapter 5, which reveals large differences in the size of the motherhood effect on wages between women in medium social positions that did or did not work in regular schedule, full-time office jobs would support this notion.

Comparative microdata on mothers' individual uptake of policies and attitudes or schedules, such as provided in some household surveys, time-use surveys or social surveys, could shed more light on the specific micro-macro interactions. Such studies would likely be limited to OECD countries. This course would leave most of Africa (with the exception of South Africa) unstudied, but has better prospects for including Latin American and Asian countries in the analyses. Available international surveys, like the ISSP, have started to extend their coverage to Latin American and Asian OECD member states. Recent efforts made by the Luxembourg Income Study to harmonize datasets from Latin America and Eastern Europe will probably be the first opportunity to examine motherhood effects on working hours in middle-income countries.

Some of these datasets would also allow for the inclusion of household perspectives, which is a question this dissertation has not sufficiently addressed and another potential explanation for the different behaviors within the group of medium social position mothers. Lacking detailed indicators on respondents' spouses and parents, two studies include controls for spouse's social position, one for spouse's or parents' self-employment status, and the study on motherhood effect on wages does not include any spousal controls. Surveys including either detailed spousal characteristics, or at least household income, could help clarify these issues.

6.4.3 Push and pull factors: additional labor market outcomes

Third, the dissertation chapters have shown clear differences between motherhood effects on employment and self-employment, both related to (the form of) mothers' engagement in paid employment, and those on wages, which are more related to mothers' position within in the labor market. The relationship between motherhood effects and social position is most clearly positive for wages. Results from Chapter 5 indicate that mothers in higher social positions are better able to avoid wage penalties, compounding pre-existing privileges and vulnerabilities. The moderating effect of social position on the motherhood effect on self-employment in particular, shows more variability between countries. Chapter 4 suggests that women in different social positions enter self-employment under different circumstances. The same kind of push-pull consideration has been posited to exist for entry into full-time and part-time employment (Bardasi & Gornick, 2008; Epstein et al., 2014; Kauhanen & Nätti, 2015; López Bóo, Madrigal, & Pagés, 2010; Matteazzi, Pailhé & Solaz, 2014). Full-time and part-time modes of employment, could also be expected to intersect with entry into self-employment. Research into motherhood effects on entry into full-time versus part-time dependent and self-employment could illuminate the question of how social position moderates the motherhood effect on status in employment. It would be worthwhile to study more labor market outcomes that in some way measure the labor relation or intensity, such as working hours, as well as further exploring the motives for entering the labor market under different types of labor relations. The former question could also be explored quantitatively. Given the recent expansion to middle-income countries, the Luxembourg Income Study would provide opportunities. Due to the small share of female workers that is self-employed, however, analyses of part-time versus full-time dependent and self-employment are likely to encounter problems of small area estimation.

6.4.4 Better indicators

This project has encountered a number of data limitations. Those limitations concerning the lack of detailed micro-data have been discussed at some length in the previous sections. Critical to any research agenda that seeks to study motherhood effects in industrialized and developing countries from a longitudinal perspective or across even more countries, however, are the gaps in available data on country indicators. Data investments that would greatly facilitate international comparisons are indicators of the share of two-earner and breadwinner households, part-time employment by educational or occupations categories and, remarkably, indicators that measure poverty rates and informal sector employment consistently across industrialized and developing countries.

Finally, the four studies in the dissertation find that early childhood care and education is of relevance to all labor market outcomes of mothers across social positions. The analyses,

however, also reveal remarkable heterogeneity in these effects: care has different effects depending on the ages of pupils, the social position of their mothers, the labor market outcome studied, as well as whether enrollment or quality indicators are used. Recent effects by the OECD and several work-family scholars (Boeckmann, Budig, & Misra, 2012c; Hegewish & Gornick, 2010; OECD, 2017c) have been made to qualify childcare facilities in countries in much more nuanced ways, like including the synchronization of childcare hours and working days or the quality versus affordability of care. These kind of detailed indicators, when combined with data on the individual use of childcare facilities, could reveal the extent to which childcare effectively facilitates entry into work and work-family reconciliation in work for workers in different social positions.

Next to the need to develop these childcare policy indicators for more countries, datasets with more detailed individual level indicators as well as qualitative interviewing techniques, could address questions of how childcare scheduling relates to work scheduling in typical and atypical work under different childcare availability and affordability. Relevant dimensions include the number of days that children are cared for in formal institutions, by parents, grandparents and hired help; how much families spend on childcare; at what time children are dropped and picked up from school and childcare.

Table 6.4 Overview of country level effects on maternal employment levels and the motherhood effect on employment

	Bivariate			Controlled for GDP		
	Motherhood effect	Low social position	High social position	Motherhood effect	Low social position	High social position
Per capita GDP	-0.021**	0.007	0.001	-0.021**	0.007	0.001
GDP squared	-0.002	-0.010	-0.004	-0.002	-0.010	-0.004
Poverty levels	0.003	-0.033*	-0.006	0.009	-0.031**	-0.004
Poverty Squared	0.014	0.009	-0.006	0.005	0.014	-0.011
GINI	0.002*	-0.001	0.002*	0.002*	-0.002*	0.002
Collective bargaining coverage	0.000	0.000	0.001	0.001	-0.001	0.001
Working time policies	-0.012	0.014	0.024	-0.011	0.011	0.023
Paid maternity leave (weeks)	0.001	0.000	0.000	0.000	-0.001	0.000
Maternity leave squared	0.000	0.000	0.000	0.000	0.000	0.000
Part time	-0.001	0.000	0.003	0.000	-0.001	0.005*
Childcare scale	-0.017	0.000	0.010	0.016	-0.010	0.021
Childcare enrollment 0-2	-0.001	0.000	0.000	0.001	-0.001	0.001
Pre-primary enrollment	0.000	0.000	0.000	0.000	0.000	0.000
Pupil-teacher ratio	0.003*	-0.003	0.001	0.002**	-0.003*	0.001
Expenditure on pre-primary	-0.028	0.026	-0.033	-0.006	0.019	-0.031
Gender equality in society	-0.028**	0.020	0.009	-0.009	0.028	0.016
Gender equality in the labor market	-0.065	0.021	-0.043	0.037	0.002	-0.050
Support for working mothers	0.009	-0.014	-0.015	0.094	-0.031	-0.052
Stigma against housewives	0.091*	-0.051*	0.057	0.073	-0.053**	0.046

*Note: *** p<0.001, ** p<0.01, * p<0.05, † p<.1.*

Note: each cell represents the coefficient of the country level indicator in a regression of the AME of motherhood and CPMs of low and high social position bivariately (left) or controlled for per capita GDP (right).

Table 6.5 Overview of country level and social position effects on the motherhood effect on self-employment

		Bivariate				Controlled for per capita GDP			
	N	Full sample	Main effect of motherhood (AME)	Low social position mother (CPM)	High social position mother (CPM)	Full sample	Main effect of motherhood (AME)	Low social position mother (CPM)	High social position mother (CPM)
Economic contexts									
GDP	23	0.0005	0.0004	-0.0003	0.0001				
Poverty	23	0.0002	0.0001	-0.0003	0.0001	0.0001	0.0001	-0.0002	0.0001
Gini coefficient	23	0.0003	0.0003	-0.0004	0.0003	0.0001	0.0001	-0.0003	0.0003
Collective bargaining coverage	11	0.0000	0.0000	-0.0001	-0.0001	0.0000	0.0000	-0.0001*	0.0000
Policy contexts									
Weeks of paid maternity leave	23	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	-0.0001
Part-time (% of female employment)	23	0.0000	-0.0001	0.0001	0.0003	0.0001	0.0000	0.0001	0.0004
Childcare 0-2 enrollment	23	-0.0003	-0.0003	0.0001	-0.0001	0.0001	0.0002	-0.0002	0.0000
Pre-primary enrollment	23	0.0001	0.0001	-0.0001	0.0000	0.0003	0.0002	-0.0001	0.0000
Pupil-teacher ratio	20	0.0024**	0.0021**	-0.0010**	0.0004	0.0023**	0.0020**	-0.0010**	0.0004
Investment in pre-primary education	23	-0.0034	-0.0022	0.0025	-0.0094	-0.0014	-0.0004	0.0018	-0.0091
Cultural contexts									
Gender equality in the labor market	23	0.0501	0.0405	-0.0161	-0.0367	0.0809	0.0681	-0.0321	-0.0332
Stigma against working mothers	18	0.0244	0.0214	-0.0142†	0.0144†	-0.0438	-0.0341	0.0141	0.0040
Stigma against housewives	18	-0.0177	-0.0126	0.0054	0.0109	0.0198	0.0172	-0.0120	0.0133

*Note: *** p<0.001, ** p<0.01, * p<0.05, † p<.1.*

Note: each cell represents the coefficient of the country level indicator in a regression of the AME of motherhood and CPMs of low and high social position bivariately (left) or controlled for per capita GDP (right).

Table 6.6 Overview of country level and social position effects on the motherhood effect on wages

	Nj	Main effect of motherhood	Medium social position mother	High social position mother
Poverty	13	-0.015†	0.010	0.012*
Gini coefficient	13	-0.003	0.005†	0.006*
Collective bargaining coverage	13	0.001	-0.001	-0.001
Childcare 0-2 enrollment	13	0.001	-0.002	-0.003*
Pre-primary enrollment	13	-0.002	0.002	0.001
Pupil-teacher ratio	11	-0.004	0.010†	0.007
Investment in pre-primary education	13	-0.213	0.085	0.081
Gender equality in the labor market	13	-1.676*	1.268†	0.845

*Note: *** p<0.001, ** p<0.01, * p<0.05, † p<.1.*

Note: each row represents the coefficient of a three-way interaction with the country level indicator in a hierarchical linear model. All individual-level control variables from chapter 5 are added.

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Relative Contribution of Authors

This dissertation is based on four empirical studies that were written for peer reviewed journals:

CHAPTER 2: LABOR FORCE PARTICIPATION OF PRIME AGE WOMEN

First Author: J.W. Besamusca

Co-authors: M.J. Keune, K.G. Tijdens, S.M. Steinmetz

Published as: Besamusca, J., Tijdens, K., Keune, J. & Steinmetz, S. (2015). Working Women Worldwide. Age Effects in Female Labor Force Participation in 117 countries. *World Development, 74*, 123-141.

The research question for this study was formulated by the PhD candidate, after which the (co-)authors jointly discussed the structure of the paper. All data collection and data analyses were performed by the PhD candidate. Dr. Tijdens provided advice on access to and the use of the ILO EAPEP dataset. The PhD candidate wrote all drafts of the paper, the co-authors provided extensive advice for revisions.

CHAPTER 3: MOTHERHOOD EFFECTS ON EMPLOYMENT

Author: J.W. Besamusca

Submitted as: Gaps of Levels: Country contexts, maternal employment, and social position for women in different social positions across 31 high- and middle-income countries.

CHAPTER 4: MOTHERHOOD EFFECTS ON SELF-EMPLOYMENT

Author: J.W. Besamusca

Submitted as: The Short or Long End of the Stick? Mothers' Social Position and Self-Employment Status from a comparative perspective.

CHAPTER 5: MOTHERHOOD EFFECTS ON WAGES

First Author: J.W. Besamusca

Co-authors: S.M. Steinmetz & K.G. Tijdens

Submitted as: The price of motherhood: The effect of social position on the existence and size of a child wage effect in 13 countries

The research question for this study was formulated by the PhD candidate, after which the (co-)authors jointly discussed the structure of the paper. All data collection and data analyses were performed by the PhD candidate. The PhD candidate wrote all drafts of the paper, the co-authors provided extensive advice for revisions.

ENGLISH SUMMARY

The research project

In this dissertation, I study the consequences of motherhood on different facets of women's paid labor in the public sphere, which I refer to as labor market outcomes. These motherhood effects on women's labor market outcomes have been the subject of sociological study for some time. As such, we know that in most if not all countries around the world, combining paid employment and care work is associated with time and role incompatibilities. Mothers' engagement and position in paid work is affected by the need and wish to provide care and education for their children, the opportunities and necessities to engage in paid labor, and the extent to which the former two are mutually exclusive. Country comparative research indicates that the incompatibility of work and care tasks is larger in some countries than in others. Mothers' engagement in paid work, and the nature of that work, differs between countries according to the economic necessity to work, institutional support that is provided, as well as the extent to which such behavior is considered appropriate.

However, previous research has not yet definitively shown whether the effects of country contexts on mothers' paid labor are the same across labor market outcomes, prompting questions of whether work-family policies affect motherhood effects on employment participation in the same way they do motherhood penalties on wages. The common limitation of empirical studies to either only industrialized or just developing countries means that we do not know if the effects of economic, policy, and cultural contexts work affect mothers' engagement in paid work in high- and middle-income countries in the same way. Third, mothers in different social positions, defined as more or less privileged positions from a socio-economic perspective, have different ways of dealing with time and role incompatibilities. Yet, previous studies have only started to explore the heterogeneous effects of country contexts on motherhood effects across social position. This dissertation addresses gaps in our knowledge about the applicability of these findings across labor market outcomes, levels of economic development, and social positions.

The main research question of this dissertation is: *how does women's social position moderate the way economic, policy, and cultural contexts influence motherhood effects on labor market outcomes in industrialized and developing countries?* I research these heterogeneous effects in four country-comparative studies for three separate labor market outcomes. In the first study, I explore *which country level characteristics can explain aggregate labor force participation of prime age women at different levels of economic development*? In the remaining three studies, I then research the interplay of country

contexts and women's social position on mothers' paid labor by studying their labor market participation (chapter 3), their status in employment (chapter 4), and job rewards (chapter 5). The core research objectives are: *how does women's social position moderate the way country contexts influence the motherhood effect on employment (chapter 3), self-employment (chapter 4), and wages (chapter 5) in industrialized and developing countries?*

Four studies on mothers' labor market outcomes

The first study addresses the question which country level characteristics can explain aggregate labor force participation of prime age women in countries at different levels of economic development. This question is researched in **chapter 2** through a study of age effects on female labor force participation rates in 117 low-, middle-, and high-income countries. We find that economic development and educational indicators primarily explain the country patterns found for women below 20 and over 55 years of age, whereas countries' work-family policies and cultural contexts are more closely associated with the labor force participation of women in age groups most likely to care for dependent children. Results indicate that female labor force participation rates of women between 20 and 55 are higher in countries with higher enrollment in pre-primary education, stronger political rights for women, and where lower shares of the population adhere to a single religious denomination. The association between labor force participation rates for this prime age group and the length of paid maternity leave was inversely u-shaped, indicating greater shares of women are in the labor force in countries providing paid leaves of moderate length.

A number of conclusions and findings from this first study determine the direction of the next three studies. First of all, the findings for the prime-age group in the study suggest that motherhood effects are in fact sizeable enough to drive country differences in aggregate female labor force participation and that they are best explained by work-family and cultural contexts. Secondly, these contexts affect the group of women between 20(25) and 55(60) years of age in roughly similar ways. Thirdly, our findings on the educational enrollment measures suggest that social position serves as a stratifying factor within rather than between countries. Fourthly, analyses for countries at different levels of economic development indicate that higher care burdens are associated with lower female labor force participation high- and upper-middle-income levels.

In the next study (**chapter 3**), I therefore re-adjust the scope to 31 high- and middle-income countries and choose a dataset that allows for the identification of motherhood, social position, and employment status on the individual level. The study examines how social position moderates the association of economic, policy, and cultural contexts with the motherhood effect on employment. In the study, I also consider the preferred

operationalization of mothers' paid work by testing both the share of mothers in paid employment (maternal employment levels) and the effect of motherhood status on women's probability of being employed (motherhood effect). Findings indicate that mothers in low social positions are least likely to be in paid employment and women in medium social positions pay the largest motherhood penalties in most countries. Gender equality and lower stigmatization of working mothers are associated with higher maternal employment levels across social positions, but not with the overall motherhood effect. Early childhood care and education is associated with higher maternal employment *levels* and smaller motherhood penalties for women in medium and high social positions. Higher poverty rates and economic inequality are associated with stronger penalties for women in low social positions, whereas countries with a stronger distaste of housewives and support for working mothers on average show a smaller penalty for mothers in medium social positions.

This chapter suggests that country contexts affect maternal employment *levels* through opportunities and necessities to engage in paid employment, whereas they affect the size of motherhood *effects* through role and time incompatibilities. Analyses of moderating effect of social position suggest that mothers in low social positions are more sensitive to economic necessity and time incompatibilities, whereas behavior of their high social position peers is better explained by opportunities and role incompatibilities. The positive association between childcare enrollment and the motherhood effect on the employment of women in high social positions, contradicts expectations that mothers in lower social positions will be more dependent on the provision of services, but is in line with findings that potential market earnings might not outweigh the cost of childcare for mothers in lower social positions. The smaller motherhood penalties on employment for women in medium social positions, in countries with more supportive attitudes towards working women, confirms theoretical expectations that the stigmatization of mothers' paid work first and foremost concerns manual work.

The third study, presented in **chapter 4**, researches the way social position moderates the influence of country contexts on the motherhood effect on self-employment. This is the only labor market outcome in which motherhood is expected to yield a premium. In the chapter, I test two apparently competing explanations of this motherhood premium. The *mumpreneurship* thesis presents the motherhood effect on self-employment as the preference-based reconfiguration of the time and location of paid work activities around care tasks. The *disadvantaged worker* thesis argues that mothers in the weakest labor market position are pushed into self-employment as the work-family conflict they experience in waged employment makes them less desirable workers to employers than their counterparts without care responsibilities. I argue that the *mumpreneurship* and *disadvantaged worker* theses should not be conceived of as opposing theories regarding the effect of social position,

but rather as two separate theories speaking to mothers in a high social position and in a low social position respectively. Results show that the *disadvantaged worker* effect is stronger in countries with lower childcare and pre-primary enrollment, whereas the *mumpreneurship* effect is more salient where pre-primary education facilities have larger class sizes and the stigmatization of housewives is stronger. As such, the study suggests that social position moderates the effect of policy and cultural contexts on motherhood effects on type of work through different theoretical mechanisms.

Finally, in **chapter 5**, we study the effect of motherhood on job rewards by looking at the motherhood wage penalty. We contribute to the stratification debate by testing three competing hypotheses regarding the group of mothers that should be expected to pay the largest wage penalties. The *foregone career* hypothesis argues that women in high social positions, who stand to gain most from a career, also have most to lose. The *time incompatibility* thesis posits that women in low-autonomy office jobs experience most work-family conflict, leading to the expectation that women in medium social positions will suffer the largest penalties. Finally, the *disadvantaged worker* thesis argues that mothers in the weakest labor market positions will be least able to mitigate the fallout from departing from ideal worker norms.

In the study of 13 high- and middle-income countries, we find larger wage penalties for mothers in low social positions (19%) compared to those in medium (10%) and high (9%) social positions. We also find evidence of larger penalties for medium social position mothers who adjust work patterns away from 9 to 5 office jobs, for example if they work shifts or shorter hours. The wage penalty for mothers in medium social positions is in fact only smaller than that of low social positions mothers after these factors are controlled for. Mothers in low social positions, on the other hand, do experience smaller penalties if they have been promoted at their current firm, indicative of having more tenure. Results from the country comparisons indicate that the disadvantage of mothers in low social positions is worse in countries with larger income inequality and lower enrollment in formal childcare institutions.

The moderating effect of social position on mothers' labor market outcomes

Reflecting on the findings from the four constituent studies of this dissertation, three main conclusions are drawn. First, on average motherhood has a negative effect on women's probabilities of being employed and on earned wages. Women in low social positions pay the largest motherhood penalties on wages and women in medium social positions experience that largest motherhood penalties on employment. Motherhood has mixed effects on women's probability of being self-employed, being associated with premiums in some

countries and penalties in others. Similarly, social position does not relate to motherhood effects on self-employment in a uniform way across countries.

Second, without reference to women's social position, some limited conclusions can be drawn about the relationship between country contexts and mothers' paid labor: motherhood penalties on employment are larger at higher levels of per capita GDP and maternal employment levels are associated with economic development in a U-shaped relation; maternal employment levels higher in countries with more gender equality; maternal employment levels are higher, penalties on employment are smaller, and premiums on self-employment are larger in countries with more enrollment and investment in early childhood care and education.

Third, social position moderates the effect of country contexts on mothers' labor market outcomes. In countries with higher poverty rates and economic inequalities, women in low social positions experience larger motherhood penalties on employment and wages. Enrollment and investment in early childhood care and education, including pre-primary education and childcare for ages 0 to 2, are associated with relatively smaller motherhood penalties on employment and larger motherhood premiums on self-employment for women in medium and high social positions; and with relatively smaller wage penalties for mothers in low social positions. Finally, mothers in medium social positions experience smaller motherhood penalties on employment in countries with more supportive attitudes towards working mothers and negative attitudes towards housewives are associated with larger motherhood premiums on self-employment for women in high social positions.

Contributions

This study contributes to work-family research and the stratification literature by systematically exploring the size of motherhood effects for women in different social positions across labor market outcomes and country contexts. In so doing, I have shown that effects of policy contexts differ between groups, but are rarely contradictory in the sense that they help one group and harm another. Notably, the dissertation addresses one of the major puzzles of work-family research: while most theories would suggest that mothers in low social positions should benefit more from childcare policies, since they lack the resources to outsource care, most studies have found the opposite. Based on findings in chapters 3 and 5, I argue that childcare is rarely subsidized to the level that offsets the utility curve for low wage earners, explaining why early childhood care and education do so little to reduce their motherhood penalties in employment. However, these policies might make it easier for those already in the labor market to hold on to jobs, increase hours, and gain tenure – explaining

why childcare is more strongly associated with reductions in the motherhood wage penalties for low social position mothers than for medium and high social position mothers.

Furthermore, this dissertation contributes to knowledge of motherhood effects by testing the same relations across high- and middle-income countries. I show that the relation between motherhood status, social position, and women's labor market outcomes is comparable across high- and upper-middle-income countries, with more tentative evidence in lower-middle-income countries. While *levels* of maternal employment, self-employment, and wages are strongly related to economic development, this dissertation indicates that motherhood *effects* are much better explained by looking at a range of economic, policy, and cultural contexts. Finally, this dissertation critically evaluates the quality and availability of data for such global analyses because it includes a review of the quality of available data for high- and middle-income countries, suggesting comparable measurements of poverty rates and more detailed indicators for early childhood care and education are particularly lacking. This dissertation puts forward a clear overview of the effects of motherhood and social position in middle-income countries that could serve a more global case selection for future comparative studies.

NEDERLANDSE SAMENVATTING

Het promotieonderzoek

In dit promotieonderzoek bestudeer ik de effecten van moederschap op verschillende facetten van betaald werk. Deze effecten duid ik aan als arbeidsmarktuitkomsten. Sociologen zijn al jaren geïnteresseerd in de impact van het moederschap op betaald werk. Uit eerder onderzoek weten we onder meer dat het combineren van betaald werk en zorg voor kinderen in vrijwel alle landen ter wereld wordt geassocieerd met rolconflicten, die voortkomen uit verwachtingen jegens gedrag of tijdsbesteding. De arbeidsdeelname van moeders en hun positie op de arbeidsmarkt wordt beïnvloed door verschillende aspecten: de wens en de noodzaak om te zorgen voor kinderen, de kansen en noodzaak van arbeidsdeelname en tenslotte de vraag of het mogelijk is om de zorg- en werktaken te combineren. Vergelijkend onderzoek heeft aangetoond dat landen verschillen in de mogelijkheden die zij bieden om betaald werk te combineren met zorg voor kinderen. Deze verschillen komen onder meer voort uit economische factoren zoals de economische noodzaak om in een huishouden meerdere ouders aan het werk te hebben en de vraag in hoeverre werk-zorg combinaties beleidsmatig ondersteund worden en cultureel geaccepteerd zijn.

Toch zijn er nog veel onbeantwoorde vragen. Pas vrij recent zijn we ons gaan afvragen of de manier waarop landen hun werk-zorg beleid, cultuur en economie organiseren wel hetzelfde effect heeft op de arbeidsmarktuitkomsten van vrouwen in uiteenlopende sociale posities en in ontwikkelingslanden of geïndustrialiseerde landen. Hierdoor is bijvoorbeeld nog onduidelijk of werk-zorg beleidsmaatregelen die de arbeidsdeelname van moeders bevorderen ook hun loonverschillen ten opzichte van kinderloze vrouwen verminderen. Veel onderzoek spitst zich bovendien eenzijdig toe op hoge inkomenslanden of middeninkomenslanden. Daardoor blijft onduidelijk wat de invloed is van maatregelen op moederschapseffecten voor vrouwen in verschillende sociale posities in verschillende landen. Tenslotte is nog de vraag of moeders in verschillende sociaaleconomische posities op dezelfde manier omgaan met rolconflicten. Dit zijn de vragen die dit promotieonderzoek tracht te beantwoorden.

De overkoepelende onderzoeksvraag van de dissertatie is: *hoe modereert sociale positie de manier waarop economische, beleids- en culturele contexten moederschapseffecten op arbeidsmarktuitkomsten beïnvloeden in hoge en middeninkomenslanden?* Ik onderzoek deze heterogene effecten van moederschap in vier landenvergelijkende studies, waarin drie verschillende arbeidsmarktuitkomsten bestudeerd worden. In de eerste studie bestudeer ik welke landenkenmerken de geaggregeerde arbeidsparticipatie van vrouwen tussen de 25 en 55 kunnen verklaren in ontwikkelingslanden en geïndustrialiseerde landen. In de

overige drie studies onderzoek ik de interactie tussen landencontexten en sociale positie op moederschapseffecten door te kijken naar arbeidsdeelname (hoofdstuk 3), de arbeidsrelatie (hoofdstuk 4) en remuneratie (hoofdstuk 5). Als zodanig onderzoek ik hoe sociale positie en landencontexten zich verhouden tot moederschapseffecten op arbeidsdeelname, op het werkzaam zijn als zelfstandige en op beloning in hoge en middeninkomenslanden.

Vier studies over de arbeidsmarktuitkomsten van moeders

De eerste studie van dit proefschrift richt zich op de vraag welke landenkenmerken de arbeidsmarktuitkomsten van vrouwen tussen de 25 en 55 kunnen verklaren op verschillende niveaus van economische ontwikkeling. Deze vraag wordt onderzocht in hoofdstuk 2 in een studie naar leeftijdseffecten op de arbeidsparticipatiegraad van vrouwen in 117 lage-, midden- en hoge inkomenslanden. De belangrijkste bevindingen zijn dat het niveau van economische ontwikkeling en onderwijsdeelname primair de arbeidsparticipatiegraad van vrouwen onder de 20 en boven de 55 in een land verklaren, terwijl de arbeidsparticipatiegraad van vrouwen in de leeftijdsgroep van 20 tot 56 jaar sterker geassocieerd is met culturele contexten en werk-privé beleid. De arbeidsparticipatiegraad van vrouwen tussen de 20 en 56 – de leeftijdsgroep die het vaakst verantwoordelijk is voor de zorg voor kleine kinderen – is hoger in landen waar meer kinderen naar voorschools onderwijs gaan, politieke rechten van vrouwen sterker verankerd zijn en waar minder mensen tot een overheersende religieuze stroming behoren. Tenslotte is de arbeidsparticipatiegraad van vrouwen in deze leeftijdsgroep hoger in landen met betaald zwangerschapsverlof, mits het verlof niet van te lange duur is.

De bevindingen in dit hoofdstuk bepalen voor een belangrijk deel welke kant het promotieonderzoek op gegaan is. Ten eerste geeft de eerste studie aan dat vrouwen tussen de 20(25) en 55(60) een substantieel lagere arbeidsparticipatiegraad hebben dan jongere en oudere vrouwen in hoge- en middeninkomenslanden en hoger in lage inkomenslanden, wat impliceert dat de effecten van moederschap groot genoeg zijn om hun weerslag te hebben op de geaggregeerde arbeidsparticipatiegraad. Ten tweede komt hieruit voort dat deze landenpatronen het best worden verklaard aan de hand van beleids- en culturele factoren. Ten derde rijst de vraag of onderwijs wellicht niet tussen, maar juist binnen landen discrimineert, vanwege het verrassende gebrek aan invloed van onderwijsdeelname op de arbeidsparticipatiegraad. Tenslotte kent het totale vruchtbaarheidscijfer een negatieve associatie met de arbeidsparticipatiegraad van vrouwen in hoge midden- en hoge inkomenslanden.

In de tweede studie (**Hoofdstuk 3**) kijk ik daarom naar 31 hoge- en middeninkomenslanden en is gekozen voor een dataset waarin op individueel niveau de moederschapstatus, sociale

positie en arbeidsdeelname van vrouwen geïdentificeerd kan worden. Deze studie gaat over het effect moederschap op de arbeidsdeelname en kijkt daarbij zowel naar het percentage moeders dat werkt (deelnameniveau) als naar de arbeidsdeelname van moeders ten opzichte van vrouwen zonder kinderen (moederschapseffect). Het onderzoek toont aan dat in de meeste landen moeders in een lage sociale positie de laagste arbeidsdeelname hebben, terwijl moeders in middenpositie de grootste moederschapseffecten hebben. Onderzocht wordt vervolgens hoe sociale positie en de nationale context op economisch, beleidsmatig en cultureel gebied het niveau van arbeidsdeelname en het moederschapseffect beïnvloeden. De analyses laten zien dat het niveau van arbeidsdeelname van moeders hoger is in landen met meer gendergelijkheid en waar werkende moeders cultureel gezien meer geaccepteerd zijn. Toch worden dezelfde landenkenmerken niet geassocieerd met lagere moederschapseffecten. Een hogere deelname aan kinderopvang en voorschools onderwijs, daarentegen, is geassocieerd met zowel een hogere arbeidsdeelname als een kleiner moederschapseffect voor vrouwen in midden- en hoge sociale posities. In landen met een hoger armoedepercentage en meer economische ongelijkheid ervaren vooral vrouwen in lage sociale posities grotere moederschapseffecten. In landen waar werkende moeders meer geaccepteerd zijn terwijl huisvrouwen minder acceptatie ervaren vind ik kleine moederschapseffecten voor vrouwen in een midden positie.

Uit dit hoofdstuk volgt dat verschillen tussen landen op het niveau van arbeidsdeelname van moeders in de eerste plaats verschillen reflecteren in de kansen om te werken en de (financiële) noodzaak daartoe. Landenverschillen in de grootte van het moederschapseffect, daarentegen, lijken geassocieerd met de intensiteit van rolconflicten gebaseerd op zowel tijd als verwachte gedragingen – dat wil zeggen, in hoeverre moeders zowel de opvang van kinderen als werktijd kunnen regelen en of deze werk-zorg combinaties cultureel geaccepteerd zijn. De analyses van het modererende effect van sociale positie laten zien dat de arbeidsdeelname van moeders in een lage sociale positie sterker beïnvloed wordt door de economische noodzaak voor een (tweede) inkomen en rolconflicten gebaseerd op tijd, terwijl de arbeidsdeelname van moeders in hoge sociale posities beter verklaard wordt aan de hand van kansen op de arbeidsmarkt en rolconflicten gebaseerd op verwacht gedrag. Opvallend is de bevinding dat een hogere participatie in kinderopvang in het bijzonder het moederschapseffect voor vrouwen in hogere sociale posities verkleint. Dit gaat in tegen verwachtingen dat moeders in lagere sociale posities meer afhankelijk zijn van kinderopvang en ondersteunt het beeld dat de kosten van kinderopvang zelden laag genoeg zijn om werk voor moeders in lage sociale posities financieel voordelig te maken. Tenslotte bevestigt de bevinding dat moederschapseffecten voor vrouwen in het sociale middenveld kleiner zijn in landen waar men positiever staat tegenover werkende moeders de hypothese dat de stigmatisering van werkende moeders zich vooral toespitst op uitvoerend werk.

De derde studie (**Hoofdstuk 4**) gaat over het effect van moederschap, sociale positie en landkenmerken op de kans dat werkende vrouwen als zelfstandige werken in plaats van in loondienst. Dit is de enige arbeidsmarktuitkomst gemeten in dit promotieonderzoek, waar de verwachting is dat moederschap een bonus effect heeft, dat wil zeggen dat moeders relatief vaker als zelfstandige werken dan vrouwen zonder kinderen. In deze studie test ik twee ogenschijnlijk tegengestelde verklaringen voor deze moederschapsbonus. De eerste theorie (*mumpreneurship thesis*) stelt dat de meer flexibele scheiding tussen werk- en vrije tijd in zelfstandig werk voor vrouwen met kinderen een werk-optie biedt waarin zij niet hoeven te kiezen tussen carrière en kind, omdat zij toestaat om werkplekken en werktijden om de zorg voor kinderen heen te organiseren. Deze theorie stelt dat moeders in hogere sociale posities, die vaker de financiële zekerheid en de benodigde vaardigheden hebben, verantwoordelijk zijn voor de moederschapsbonus. De tweede theorie (*disadvantaged worker thesis*) stelt juist dat zelfstandig werk meer onzekerheid met zich meebrengt, bijvoorbeeld vanwege een variabel inkomen en gebrekkige toegang tot sociale zekerheid, en daarom vooral mensen trekt die geen baan in loondienst hebben kunnen bemachtigen. Moeders in lage sociale posities, met hun zwakkere arbeidsmarktpositie en bijkomende zorgverplichtingen en rolconflicten, zijn om die reden oververtegenwoordigd onder zelfstandigen, zo luidt de tweede theorie. In dit hoofdstuk beargumenteer ik dat de twee theorieën niet als conflicterend hoeven te worden gezien maar juist als complementair – de eerste verklarend in welke landen de moederschapsbonus onder vrouwen in hoge sociale posities groter is, de tweede waar dit voor moeders in lagere sociale posities zo is. Het onderzoek laat zien dat het *disadvantaged worker* effect sterker is in landen met lagere deelname aan kinderopvang en voorschools onderwijs en het *mumpreneurship* effect groter in landen waar de kwaliteit van voorschools onderwijs lager is en meningen over huisvrouwen negatiever.

In de vierde en laatste studie (**Hoofdstuk 5**) wordt het moederschapseffect op lonen onderzocht. Hier wordt verwacht, en bevestigd, dat moeders relatief lagere lonen verdienen dan vrouwen zonder kinderen. Het hoofdstuk is een contributie aan de stratificatie sociologie, waar drie concurrerende hypothesen bestaan over welke vrouwen het grootste moederschapseffect ervaren. De *foregone career* hypothese stelt dat vrouwen in de hoogste sociale posities, die potentieel de beste carrière perspectieven hebben, juist daarom het meestal nadeel ervaren van moederschap: ze hebben het meest te verliezen. De tijdsconflict hypothese (*time incompatibility*) stelt dat vrouwen in het sociale middenveld de grootste moederschapseffecten ervaren, omdat zij hun kantoorbanen met weinige controle over hun werkuren en werkplek het minst flexibel kunnen combineren met de hectiek van de zorg voor kinderen. Tenslotte luidt de precariteit hypothese (*disadvantage worker thesis*) de moederschap voor alle vrouwen nadelig werkt op de carrièreperspectieven, maar dat

vrouwen in een lage sociale positie het minst in staat zijn om de consequenties daarvan op te vangen en dat juist zij daarom de grootste moederschapseffecten ervaren.

In het onderzoek over 13 hoge en middeninkomenslanden betalen moeders in lage sociale posities de hoogste prijs voor moederschap (19% moederschapseffect), vergeleken met vrouwen in de midden (10%) en hoge (9%) sociale posities. Daarnaast geven de resultaten echter aan dat vrouwen in het sociale middenveld moederschapseffecten ervaren die gelijk bijna zijn aan die van de vrouwen in een lage sociale positie als zij niet in een 9 tot 5 voltijd kantoorbaan werken, maar bijvoorbeeld shift werk doen of minder uren werken. Vrouwen in lage sociale posities ervaren juist kleinere moederschapseffecten als zij promotie hebben gemaakt bij hun huidige werkgever, wat suggereert dat zij de moederschapseffecten deels kunnen mitigeren als ze er in slagen langer bij dezelfde werkgever blijven. De landenvergelijkende analyse toont aan dat de relatief grote moederschapseffecten voor vrouwen in lage sociale posities dan ook kleiner zijn in landen waar meer kinderen naar de kinderopvang gaan en groter in landen met meer inkomensongelijkheid.

Het modererende effect van sociale positie op de arbeidsmarkt-uitkomsten van moeders

Naar aanleiding van de vier studies waarop het promotieonderzoek gebaseerd is, kunnen drie sets aan conclusies worden getrokken. De eerste gaat over de relatie tussen moederschapseffecten en sociale positie. In het proefschrift concludeer ik dat moederschap, in het algemeen, een nadelig effect heeft op de arbeidsdeelname en de lonen van vrouwen. Vrouwen in een lage sociale positie ervaren het grootste moederschapseffect op lonen en vrouwen in het sociale middenveld het grootste moederschapseffect op arbeidsdeelname. Moederschap heeft meer gemixte effecten op de kans dat een vrouw als zelfstandige werkzaam is. In dit geval wordt moederschap in sommige landen met hogere en in andere met lagere kansen geassocieerd. Ook voor de relatie tussen het moederschapseffect en sociale positie gaat op dat er geen eenduidig effect te ontwaren is, maar dat deze relatie verschilt tussen landen.

Ten tweede kunnen op basis van de relatie tussen de economische, beleids- en culturele landkenmerken en de arbeidsmarktuitkomsten van moeders een aantal algemene conclusies worden getrokken. Het begrip sociale positie wordt dan buiten beschouwing gelaten. Hoewel de arbeidsdeelname van moeders hoger is in hoge- en lage middeninkomenslanden dan in hoge middeninkomenslanden (en dus een U-curve vorm), is het negatieve effect van moederschap op arbeidsdeelname groter op hogere niveaus van economische ontwikkeling. Moeders werken dus vaker op hogere niveaus van economische ontwikkeling, maar blijven wel relatief meer achter bij vrouwen zonder kinderen. Daarnaast laten de bevingen zien

dat de arbeidsdeelname van moeders hoger is in landen met meer gendergelijkheid. Tenslotte worden investeringen in en deelname aan kinderopvang en voorschools onderwijs geassocieerd met zowel een hogere arbeidsdeelname van moeders, minder negatieve effecten van moederschap op arbeidsdeelname en een grotere moederschapsbonus op de kans dat een vrouw werkzaam is als zelfstandige.

Ten derde kunnen op basis van analyses die zowel de invloed van landenkenmerken als die van sociale positie in acht nemen, nog een aantal dingen worden geconcludeerd over de arbeidsmarktuitkomsten van moeders. In het algemeen kan worden gezegd dat sociale positie daadwerkelijk de relatie tussen nationale contexten op het gebied van economie, beleid en cultuur en moederschapseffecten modereert. Vrouwen in een lage sociale positie ervaren relatief grote moederschapseffecten op zowel arbeidsdeelname als lonen in landen met hogere armoedeniveaus en economische ongelijkheid. Investeringen in en deelname aan kinderopvang en voorschools onderwijs worden geassocieerd met relatief lagere moederschapseffecten op arbeidsdeelname voor vrouwen in een midden sociale positie, hogere moederschapsbonussen voor vrouwen in het sociale middenveld of in een hoge sociale positie en lagere moedershapseffecten op lonen voor vrouwen in een lage sociale positie. Tenslotte ervaren vrouwen in het sociale middenveld relatief kleinere moederschapseffecten op arbeidsdeelname in landen waar werkende moeders cultureel meer geaccepteerd zijn en hebben vrouwen in een hoge sociale positie een relatief grotere moederschapsbonus op hun status als zelfstandige in landen waar men negatiever tegenover huisvrouwen staat.

De bijdrage van het proefschrift

Mijn promotieonderzoek draagt bij aan de literatuur over arbeid en zorg en de stratificatie sociologie door systematisch het effect van moederschap op vrouwen in verschillende sociale posities in verschillende landen te onderzoeken voor drie arbeidsmarktuitkomsten. In dit onderzoek heb ik laten zien dat de effecten van beleidscontexten weliswaar verschillend zijn per sociale positie, maar zelden tegenovergesteld in de zin dat een maatregel een bepaalde groep helpt en een ander schaadt. Bovendien adresseert het onderzoek een grote openstaande vraag in de literatuur over arbeid en zorg: hoewel men over het algemeen verwacht dat moeders in een lage sociale positie meer profiteren van kinderopvang – aangezien zij zelf de minste middelen hebben om dit privaat te regelen – vinden de meeste empirische studies juist het omgekeerde. Naar aanleiding van de bevindingen in hoofdstukken 3 en 5, stel ik dat kinderopvang zelden zo sterk gesubsidieerd is dat de kosten ver boven de looninkomsten van moeders in een lage sociale positie uitstijgen. Dit verklaart waarom deze moeders hier minder van profiteren dan die in het sociale middenveld en in

hoge sociale posities. Aan de andere kant biedt kinderopvang wel kansen voor de groep moeders in een lage positie die toch blijft werken om hun baan te behouden, meer uren te werken en verantwoordelijkheid te nemen – dit verklaart waarom zij juist meer van kinderopvang profiteren als het gaat om het moederschapseffect op lonen.

Daarnaast draagt dit promotieonderzoek bij aan onze kennis over moederschapseffecten voor vrouwen in drie sociale posities, door die niet alleen in hoge inkomenslanden, maar ook in middeninkomenslanden te testen. Het onderzoek laat zien dat de relatie tussen moederschap, sociale positie en arbeidsmarktuitkomsten vergelijkbaar is tussen hoge- en hoge- middeninkomenslanden, terwijl dit voor lage middeninkomenslanden niet altijd het geval is. Hoewel duidelijk blijkt dat het niveau van arbeidsdeelname, werk als zelfstandige en loonniveaus sterk verbonden zijn met het ontwikkelingsniveau van een land, laat het onderzoek ook zien dat dit niet zo is voor de grootte van moederschaps*effecten*. Deze effecten zijn in feite veel beter te verklaren aan de hand van nationale contexten op gebied van economie, beleid en cultuur, dan door alleen naar economische ontwikkeling te kijken.

In dit promotieonderzoek kijk ik verder kritisch naar de aanwezigheid en kwaliteit van data voor mondiaal georiënteerd onderzoek. Hoofdstuk 6 bevat een overzicht van onderwerpen waarop mondiale data ontbreken en een inventarisatie van de kwaliteit van de wel beschikbare indicatoren. In het bijzonder laat ik zien dat vergelijkbare indicatoren van armoedeniveaus verrassenderwijs ontbreken en dat de beschikbare classificaties van kinderopvang en voorschools onderwijs niet voldoende gedetailleerd zijn. Tenslotte bevat het proefschrift een duidelijk overzicht van het modererende effect van sociale positie op de arbeidsmarktuitkomsten van moeders in middeninkomenslanden met suggesties voor landen die in de toekomst goede case studies kunnen vormen.